DOCUMENT RESUME

ED 071 423 EM 010 665

AUTHOR	Grayson, Lawrence P.; Robbins, Janet B.
TITLE	U. S. Office of Education Support of Computer Projects, 1965-1971.
INSTITUTION	Office of Education (DHEW), Washington, D.C. Div. of Educational Technology.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
PUB DATE	72
NOTE	286p.
AVAILABLE FROM	Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 20402 (Stock No. 1780-0823, $2.50)
EDRS PRICE	MF-$0.65 HC-$9.87
DESCRIPTORS	*Computers; *Educational Change; Educational Improvement; *Federal Legislation; *Federal Programs; Financial Support; *Research Projects
IDENTIFIERS	*US Office of Education

ABSTRACT

Because of the potential of computers for improving education, the need for educating people about computers, and the major role that the U. S. Office of Education (USOE) has had in fostering the application of computers in education, it is important that a record be made of USOE's support of computer and computer-related projects. This report attempts to provide such a record: it considers the growth of computers in education, summarizes USOE support, and describes categories and legislative authority for support. A summary of project information by subject category is followed by a list of project abstracts organized by legislative act. The abstracts are listed under the appropriate act, with information about their sources and support. Regional Educational Laboratories, Research and Development Centers, and ERIC are also described. (SH)

U.S. OFFICE OF EDUCATION SUPPORT OF COMPUTER PROJECTS 1965-1971

EM 010 605

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Superintendent of Documents Catalog No. HE 5.212:12044-71
U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON: 1972
For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C., 20402—Price $2.50

Stock Number 1780-0823

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Introduction

The U.S. Office of Education (USOE) is a major source for the support of computer activities in education. For more than 6 years, USOE has funded computer and computer-related projects (that is, projects that involve computers in some significant way) at every level of education in an effort to meet the needs of administrators, teachers and, most important, of students. During this period, it has funded more than 500 projects which utilize computers in a variety of ways, including for direct tutorial presentations, problem solving, simulation, testing, vocational guidance, instructional management, data analysis, information storage and retrieval, library services, a wide range of administrative and organizational uses, as well as other applications, and has encouraged the formation of networks and consortia for joint use of computers.

In order to properly assess its patterns of support for projects involving computers, one must keep in mind that the USOE must be responsive to the broad educational needs of the Nation and, as such, it has been organized to meet those needs in an effective way. The USOE is composed of numerous bureaus and national centers, each of which focuses its activities on a particular level or area of education, such as vocational education, elementary, secondary, and higher education, libraries, research, development, education for the handicapped, and others. Virtually every bureau and national center, at some time, has supported computer activities that have the potential to meet needs in its area of concern. Computer applications, therefore, have been supported in relationship to particular educational problems, rather than in accordance with a central plan which marks the development of computers as a special concern. Even with the focus on educational problems, rather than on the means to solve them, it is important that a record be made of USOE's support of computer and computer-related projects. This is made necessary by the potential of computers for improving education, the need for educating people about computers, and the major role USOE has already had in fostering the application of computers in education.

The Growth of Computers in Education

Computers are today affecting virtually every aspect of life in the United States. They are involved in the printing of newspapers and the production of steel, in the control of traffic lights and the prediction of election returns, in the spacing of planes in flight patterns, and in the launching and orbiting of satellites.

It is, therefore, not surprising that the use of computers in the schools and colleges of the United States is growing rapidly. In 1962, the expenditures for computers in higher education was $49 million. Seven years later those expenditures had increased sevenfold to an estimated $352 million in 1969.[1]

As shown by a recent survey,[2] there appears to be widespread availability of computers in secondary schools. Of 12,396 responses received from the 23,033 secondary schools in the continental United States, 34.4 percent reported using the computer for instruction or administration. Of the total respondents, 30.5 percent stated they were using computers for administrative purposes and 12.9 percent of the schools reported instructional uses. Although a check of the geographic dispersion of user schools showed them to cluster around major metropolitan areas, the schools were distributed across the entire nation with each of the continental-48 States reporting some user-schools.

However, one should not be misled by the large percentage of secondary schools using computers. Much of this appears to involve a very limited number of teachers and students. A survey conducted in 1967, revealed that only 1.9 percent of the secondary teachers interviewed had ever used a computer terminal.[3] While many schools appear to have access to computers, the degree of utilization by classroom teachers is still very small.

Several recent forecasts indicate that the educational use of computers will continue to grow. A BELL CANADA study [4] has projected that applications of computer-assisted instruction (CAI) alone will be used in 20 percent of the elementary schools of North America by 1978; in 20 percent of the secondary schools by 1975; and in 20 percent of the colleges and universities also by 1975. Predictions indicate that more than half of the secondary and postsecondary schools will adopt CAI systems by the mid-1980's. This rate of involvement of schools with computers will be even more rapid with applications other than CAI.

1. Levien, R.E., et. al, *"The Emerging Technology, Instructional Uses of The Computer in Higher Education," draft* report, The Rand Corporation, Santa Monica, California, September 1970, p. 138.
2. Darby, C.A., Jr., Korotkin, A.L., and Romanshke, T., *Survey of Computing Activities in Secondary School* final report, American Institutes for Research, Silver Spring, Md., October 1970, p. 9.
3. "Instructional Resources in the Classroom," *Audiovisual Instruction*, Vol. 13, No. 3, March 1968, pp. 284-285.
4. Doyle, F.J. and Goodwill, D.Z., *An Exploration of the Future in Educational Technology*, BELL CANADA, January 1971.

A Summary of USOE Support

Since 1965, the U.S. Office of Education has provided *more than $161 million in funding for more than 500 computer and computer-related projects.* These figures do not include funds for projects supported under title I of the Elementary and Secondary Education Act (ESEA), nor for the internal USOE data processing done for management information purposes and for the statistical studies performed by and for the National Center for Educational Statistics. Truly, the USOE is heavily involved in the support of computer activities in education.

The USOE support has been provided under 14 different legislative titles and acts which are administered by almost every bureau and national center in USOE. Table 1 shows the distribution of USOE support, by legislation according to fiscal years. One may note that the two legislative authorities which have provided the principal support for computer activities are title III of the ESEA (which was administered jointly by USOE and the States through 1968, and since then has been administered through the States) and the Cooperative Research Act (which is administered directly by the USOE). These two authorities together support about 80 percent of the computer and computer-related projects funded by the USOE.

The 500-plus projects involve a wide range of computer activities, such as instruction about and instruction with computers, vocational guidance, administrative and data processing services, networking, and many others. These activities have been grouped under ten categories, which are described in the next section. Table 2 gives the distribution of support by category of activity according to fiscal years.

There are several things to note about this table. First, the ten categories have been divided into two groups which correspond to instructional and non-instructional uses of computers. The instructional group includes the use of computers in teaching, in vocational guidance and instructional management, curriculum development and evaluation, and the training of teachers about computers. The non-instructional group covers all other applications, including the use of computers for data development and analysis, information retrieval and library services, school administration, planning and organization, and in networking. This division into two parts is crude, but is a logical first attempt with the fiscal records that are available.

Second, the sum of the support for the two groups exceeds $161 million, which is the total expended by USOE for computer projects. This is so because certain projects involve more than one major activity. Since there has been no reasonable way to divide the cost of a project between its subactivities, the total project expenditure was listed under each category.

From an examination of tables 1 and 2 and figures 1 to 5, which are derived from the tables, certain trends in the pattern of USOE support for computer activities are discernable:

- The total yearly support is decreasing (figure 1).
- The number of projects supported each year is decreasing (figure 1).
- The average yearly support per project is increasing (figure 2).
- The total support provided by the Cooperative Research Act (the principle program administered directly by USOE) is remaining relatively constant, while the support from ESEA title III (now administered by the States) is decreasing (figure 3).
- The average yearly support per computer project provided by the Cooperative Research Act is increasing, while the average yearly support provided under ESEA title III is decreasing (figure 4).
- The yearly support provided for instructional and for non-instructional projects are both decreasing (figure 5).

These trends and the data from which they were derived are based on the records available at the USOE. These records are not complete in all cases, especially for those programs, such as ESEA titles I and III, which are administered by the States. If

these records were available, then certainly the number of projects identified and the total support provided would increase. This might alter the trends derived from the cumulative data. However, it is probable that the trends based on average support per project would remain the same. A more complete discussion of the shortcomings of the analysis is provided in appendix A.

TABLE 1.—*Support of Computer-Related Projects by Legislation and Fiscal Year*

(Number of projects shown in parentheses)

Legislation	1966	1967	1968	1969	1970	1971*	Total
Elementary and Secondary Education Act (ESEA), Title III	$7,025,654 (72) †	$13,907,109 (80)	$26,532,439 (137)	$7,734,676 (60)	$1,511,553 (17)	$171,500 (3)	$56,882,931 (220) ††
Cooperative Research Act (ESEA IV)	8,040,730 (49)	8,932,380 (66)	11,997,637 (65)	13,853,637 (64)	14,363,801 (40)	180,181 (2)	57,368,366 (181)
Higher Education Act of 1965, Title II, Part B		1,743,186 (15)	503,377 (4)	1,598,978 (13)	840,971 (6)		4,686,512 (31)
Education Professions Development Act (EPDA), Title V, Part D				30,399 (2)			30,399 (2)
EPDA, Part F				61,261 (2)			61,271 (2)
Instructional Media for Handicapped Children				200,000 (1)	256,055 (1)		456,055 (1)
Library Services and Construction Act, Title III		14,150 (2)	85,228 (2)	138,237 (5)	61,256 (5)		343,871 (5)
Mental Retardation Facilities and Construction Act	421,498 (6)	212,413 (6)	525,497 (5)	413,610 (2)	422,456 (1)		1,995,469 (12)
National Defense Education Act (NDEA), Title VII, Part A	468,795 (4)	1,326,028 (11)	1,599,312 (8)	1,828,154 (6)	1,065,120 (4)		6,287,409 (20)
NDEA, Title VII, Part B	421,164 (5)						421,164 (5)
NDEA, Title VI	47,951 (2)	101,704 (1)	252,233 (3)	244,752 (5)	70,636 (2)		717,276 (9)
Vocational Education Act of 1963	2,116,616 (12)	696,801 (8)	1,447,139 (9)	999,389 (5)			5,259,945 (19)
Adult Education Act of 1966		250,116 (1)	300,000 (1)	415,000 (2)	501,000 (2)		1,466,116 (3)
ESEA, Title I ◇			40,000 (1)	14,500 (2)	498,628 (6)	224,429 (6)	777,557 (11)
SUBTOTALS	$18,542,403 (150)	$27,183,887 (191)	$43,282,862 (235)	$27,577,593 (169)	$19,591,476 (84)	$576,110 (11)	$136,754,331 (521)
ESEA IV (ERIC)	1,900,000	3,100,000	2,800,000	4,200,000	5,000,000	8,000,000◇◇	25,000,000
TOTALS	$20,442,403	$30,283,887	$46,082,862	$31,777,593	$24,591,476	$8,576,110	$161,754,331△

* Figures for 1971 are incomplete.

† Number of projects funded in a given year.

†† Total number of projects funded is less than the sum of the yearly totals because some projects receive support for several years.

◇ Figures are very incomplete and based only on a small sample of programs in 10 States.

◇◇ Support listed for FY 1971 includes $4,000,000 for FY 1972.

△ Does not include $49 million in support of computer activities for projects carried out at Regional Educational Laboratories and at Research and Development Centers.

TABLE 2.—*Support of Computer-Related Projects by Categories and Fiscal Year*

Category	1966	1967	1968	1969	1970	1971*	Total
1. Computer Presented Instruction	$4,802,050	$8,595,549	$15,045,954	$14,967,962	$8,992,876	$320,975	$52,725,366
2. Problem Solving in Instruction	293,035	1,762,331	2,180,261	1,368,786	321,145	59,469	5,985,027
3. Instructional Guidance and Management	953,634	4,553,968	9,258,415	10,142,455	9,25[illegible]782	44,000	34,209,254
4. Long-Term Training and Curriculums	1,333,762	2,525,925	3,633,774	2,680,063	1,531,985	96,669	11,802,178
5. Short-Term Training	143,517	280,340	346,493	181,762			952,112
Total Support for Instructional Activities	$7,525,998	$17,718,113	$30,464,897	$29,341,028	$20,102,788	$521,113	$105,673,937
6. Specialized Data Development and Analysis	232,035	288,081	401,311	286,063	276,826		1,484,316
7. Automatic Data Processing	2,980,895	2,757,632	6,242,797	2,438,824	778,238		15,198,386
8. Information Management and Retrieval	2,683,253	6,515,461	7,264,319	4,028,019	1,726,361	55,000	22,272,413
9. Administration and Organization	2,338,236	9,095,285	12,293,106	10,022,124	9,513,867		43,262,618
10. Networks and Consortiums	1,725,440	3,957,409	6,390,422	1,853,803	351,889		14,278,963
Total Support for Non-Instructional Activities	$9,959,859	$22,613,868	$32,591,955	$18,628,833	$12,593,181	$55,000	$96,442,696
11. ERIC	$1,900,000	$3,100,000	$2,800,000	$4,200,000	$5,000,000	$8,000,000**	$25,000,000
12. Computer Support to Regional Educational Laboratories	$4,340,406	$6,330,195	$9,830,404	$10,891,795	$12,112,794		$43,505,594
13. Computer Support to One Research and Development Center				$5,628,719			$5,628,719

* Figures for 1971 are incomplete.

** Includes $4,000,000 appropriated for FY 72.

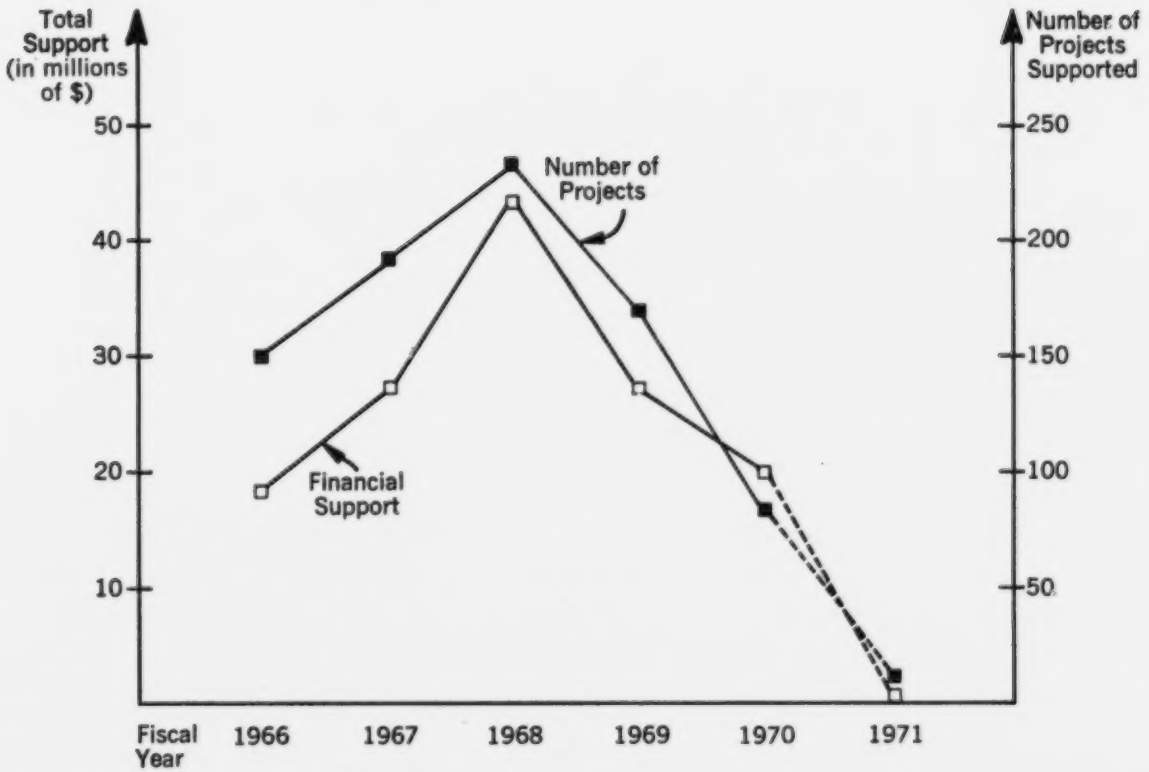

Figure 1: Support of Computer Projects by Year

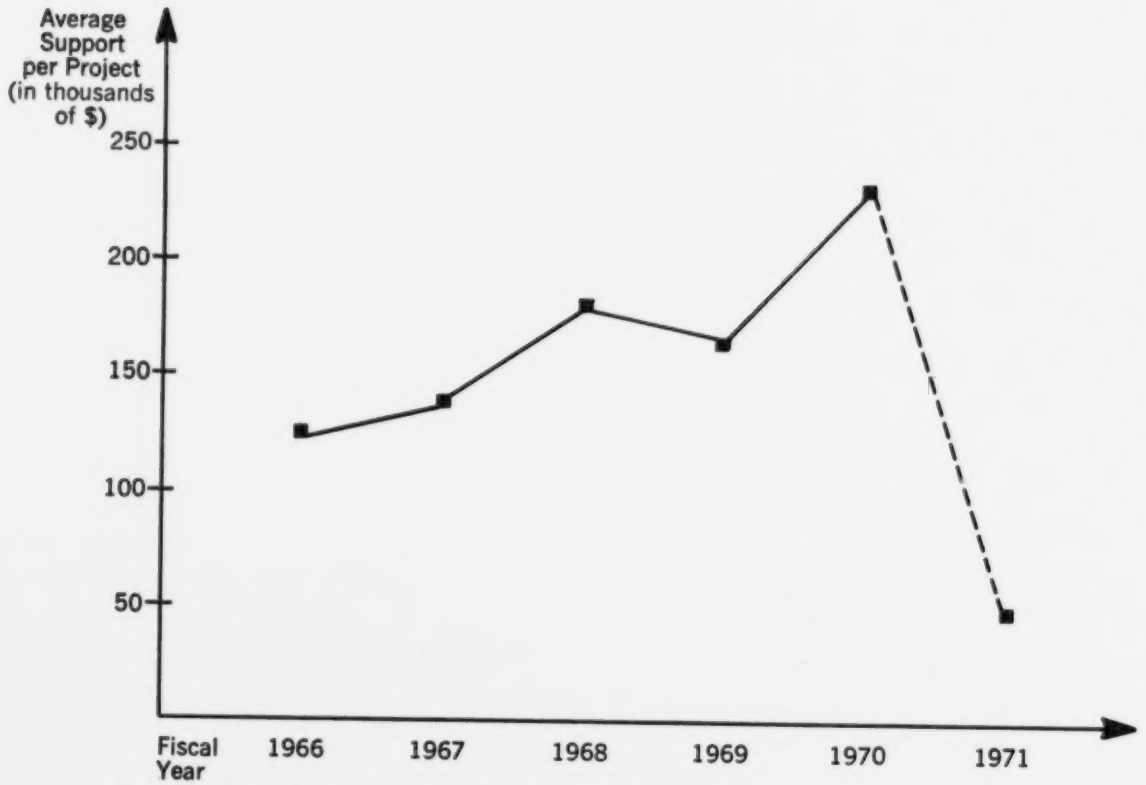

Figure 2: Average Support per Computer Project by Year

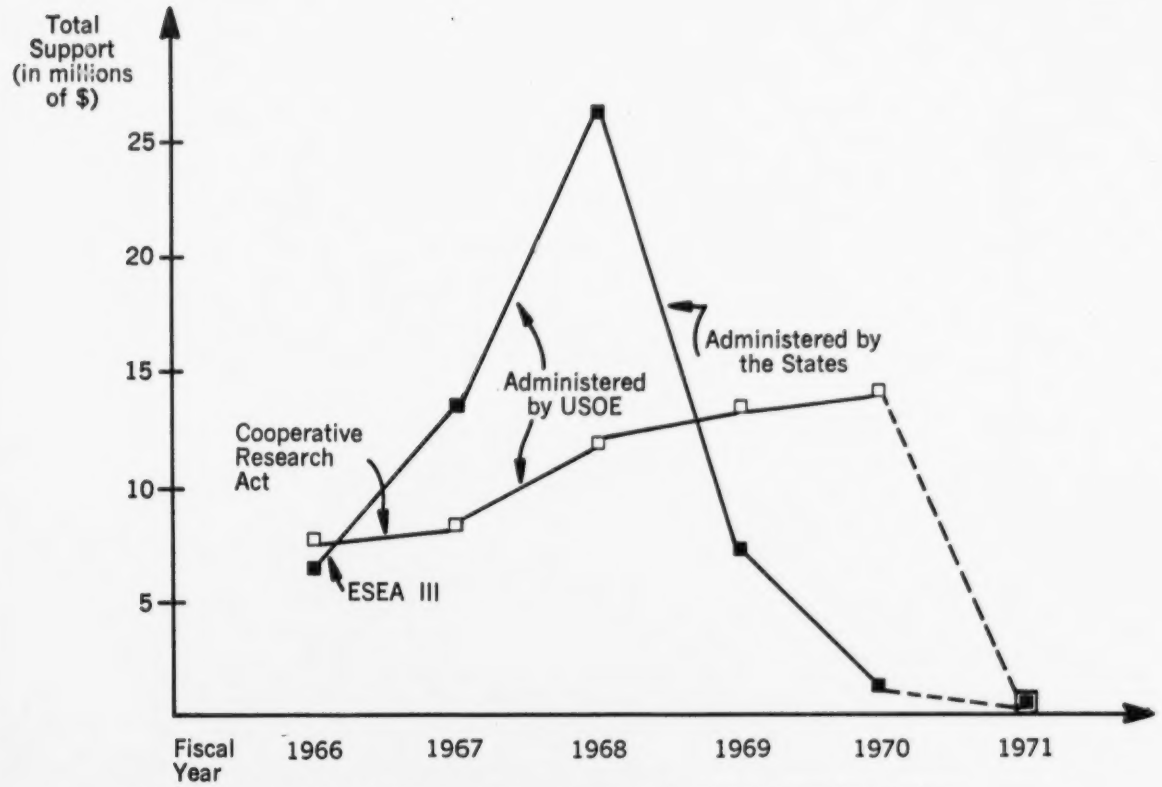

Figure 3: Support of Computer Projects Through Two Legislative Acts by Year

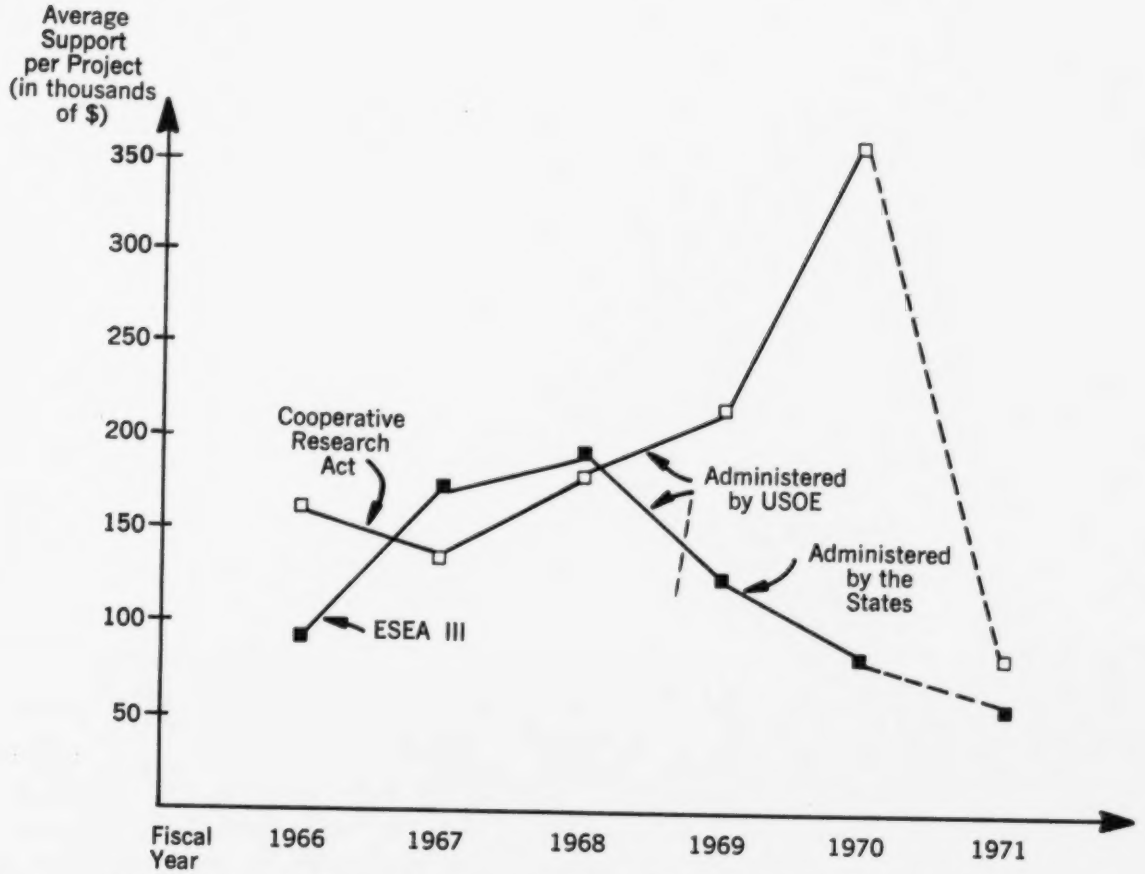

Figure 4: Average Support per Computer Project Through Two Legislative Acts by Year

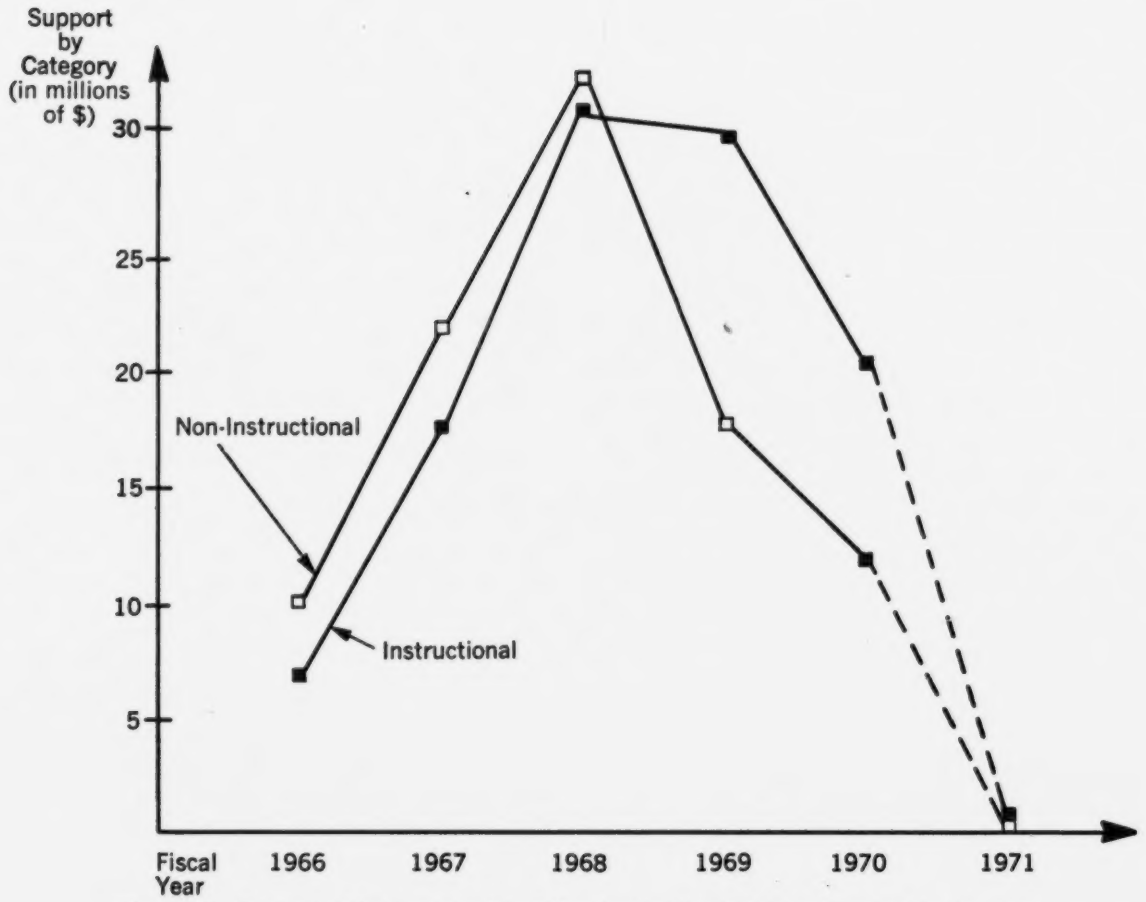

Figure 5: Support of Instructional and Non-Instructional Uses of Computers by Year

Categories of Support

In this report, the spectrum of educational uses of computers has been divided into ten categories. The categories are not mutually exclusive, but are complete in the sense that each project supported by USOE could be assigned to at least one category. While this division has been made to identify the major thrusts of Office of Education support, many projects do not fit only in one category or another. For instance, a project may involve the training of teachers to use an information retrieval system for the improvement of vocational guidance to students throughout a region. In categorizing the projects, each has been assigned to one or to a minimum number of categories which identify its major computer activities.

The primary purpose of assigning the projects to categories is to assist the reader in identifying those projects that are of most interest to him. Therefore, in making the assignment a compromise had to be made between relevance and precision. It should be possible for the reader to quickly identify all of those projects that are of interest to him but, at the same time, the list he receives should not contain many projects which fall outside of the scope of his interest. It is hoped that an acceptable and useful balance has been achieved.

1. Computer Presented Instruction

Projects in this category involve the use of a computer for direct tutorial presentations. The category includes: computer assisted instruction in the narrow sense of drill and practice or programmed learning; individualized, self-paced instruction; evaluations of computer-based instruction; research in educational psychology; and the study of learning as a student reacts to instruction presented by a computer. Most projects in this category involve on-line, time-shared computing.

2. Problem Solving in Instruction

This category incorporates the various uses of the computer as an aid to instruction. It includes: numerical analysis and the solution of equations, as performed in courses of mathematics and science; models, as in economics; games and simulations; and the use of a computer to make other instructional aids such as drawings, charts and movies.

3. Instructional Guidance and Management

Projects in this category are concerned with the process of instruction, rather than its content. Tutorial presentations are not given by the computer. Rather, projects in this category incorporate: computer managed instruction; vocational guidance; counseling; and computer administered tests.

4. Long-Term Training and Curriculums

This category involves projects which are concerned with developing, evaluating and improving curriculums for training students in the use of computers, both as part of a larger discipline, as mathematics, and as preparation for jobs in the computer field, as operators and programers. The emphasis is on instruction about computers. This category also includes fellowship programs and the establishment of long-term training programs, most of which are normally conducted several times.

5. Short-Term Training

This category incorporates those training activities which normally are conducted once for a short period of time, as 3-days to 1 month, and which have a very specific objective. Project activities include the conducting of workshops, conferences and short-term institutes, but normally are not concerned with the training of personnel in order to carry out a more central aspect of the project.

6. Specialized Data Development and Analysis

Activities in this category include: the development of algorithms; specialized data analyses; computer program development; models and simulations of human processes as used in computer sciences; reclassification of information; translation

from one data form to another, as from braille to written or spoken words.

7. Automatic Data Processing

Projects under this category utilize the computer to: perform statistical analyses and tabulations; reduce data; create files and dictionaries, both computer-based and print; and perform the routines normally associated with data processing.

8. Information Management and Retrieval

In this category projects involve: the creation and use of data banks; the storage and retrieval of information; the creation and management of bibliographic information; library services; cataloging; dissemination; and clearinghouse activities. A description of the ERIC system and the operation of its 20 Clearinghouses is provided in a separate part of this report. The funds for its direct operation are not included under this category.

9. Administration and Organization

Projects in this category involve those applications of computers designed to make a school or school system more efficient and effective in its internal administration and organization. Activities include the use of computers as aids in planning and management; in inventory control and financial accounting; in traditional class scheduling; to make teacher assignments; to handle student records; in forecasting student enrollments; in preparing paychecks; and in establishing school bus routes.

10. Networks and Consortiums

This category incorporates projects which establish cooperative arrangements between different governmental or administrative units to jointly share or participate in computer activities. It does not include projects which use a single computer to serve several schools under the same administrative control, as in a single school district. Project activities include: the establishment of interconnections between schools; planning for coordinated activities; regional planning of facilities; and interlibrary loans.

Legislative Authority for Support

The USOE may provide support for computer and computer-related activities under 15 legislated acts and titles. Fourteen of these authorities have supported computer projects in the past, nine of them in fiscal year 1970. Twelve authorize and have been the basis for the appropriation of funds in fiscal year 1971. A brief description of the 15 acts and titles follows.

I. Cooperative Research Act, Public Law 83–531, as amended by the Elementary and Secondary Education Act of 1965, Public Law 89–10, Title IV.

This act authorizes funds for the support of systematic educational research and related activities. The act as passed in 1954, authorized the Office of Education to enter into jointly financed cooperative arrangements with universities, colleges, and State educational agencies for conducting research, surveys, and demonstrations in the field of education. The scope of the program was expanded by title IV of the Elementary and Secondary Education Act of 1965, by allowing support for dissemination, the construction and operation of facilities for research and related activities, and the development of programs to train educational researchers. Title IV also expanded the eligibility criteria for potential applicants.

The Cooperative Research Act may support the use of computers in research projects of all types, including computer-assisted instruction, data processing, etc. This has been one of the two main legislated authorities used to support computer-related projects by the Office of Education.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	INDEFINITE					
Appropriation	$92,800,000	$90,200,000	$86,500,000	$76,000,000	$84,600,000	$98,077,000
Computer Support	$8,040,730	$8,932,380	$11,997,490	$13,853,637	$14,363,801	$180,181

Administered by: National Center for Educational Research and Development

II. Elementary and Secondary Education Act, Public Law 89–10, title III, as amended by Elementary and Secondary Education Amendments of 1967, Public Law 90–247, as amended by Public Law 91–230.

ESEA Title III—Supplementary Educational Centers and Services, as originally adopted, authorized the Commissioner to make grants directly to local school districts to stimulate them to seek creative solutions to local educational problems. This act was amended in July of 1968 to allow the States to administer 75 percent of the title III funds in fiscal year 1969, and to assume the entire administration of the program the following year. Under State administration, the title III program was designed to stimulate and assist in the provision of vitally needed educational services not available in sufficient quantity or quality in the State, and to support the development and establishment of exemplary education programs in elementary and secondary schools in order to serve as models for regular programs in the State. In April, 1970, Congress adopted Public Law 91–230, amending the Elementary and Secondary Education Act of 1965 and added to title III a new section giving the U.S. Commissioner of Education authority and 15 percent of the funds appropriated to establish special programs and projects. The Commissioner may now make grants directly to local education agencies for programs or projects that hold promise of making a substantial contribution to the solution of critical educational problems common to all or several States. Under Public Law 91–230, 85 percent of the title III funds is alloted to the States to continue their efforts under title III.

ESEA, title III is a major source of funds for the support of computer-related projects in the Office of Education.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$100,000,000	$175,000,000	$500,000,000	$512,500,000	$550,000,000	$566,500,000
Appropriation	$102,000,000	$135,000,000	$240,000,000	$164,800,000	$116,300,000	$143,300,000
Computer Support	$7,025,654	$13,907,109	$26,532,439	$7,734,676	$1,511,553	. . -$171,500

Administered by: Division of Plans and Supplementary Centers, Bureau of Elementary and Secondary Education.

III. National Defense Education Act of 1958, title VI, Public Law 85–864.

This program supports: studies and surveys to determine the need for increased or improved instruction in modern foreign languages and area studies; research and experimentation in more effective ways of teaching modern foreign languages and area studies; the development of specialized materials for use in teaching foreign languages and area studies and research into more effective ways of training language teachers.

Computer activities have been supported under title VI to develop more effective ways of teaching foreign languages, or to aid in the development of dictionaries of foreign languages, and as a means to improve the study of foreign languages.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$14,000,000	$16,000,000	$18,000,000	$16,050,000	$30,000,000	$38,500,000
Appropriation	$11,200,000	$13,000,000	$15,000,000	$15,000,000	$13,002,000	$7,170,000
Computer Support	$47,951	$101,704	$252,233	$224,752	$70,636	

Administered by: Division of Foreign Studies, Institute of International Studies.

IV. National Defense Education Act of 1958, title VII, part A, as amended by Public Law 88–210.

This part of the act authorized the Commissioner of Education in cooperation with the Advisory Committee on New Educational Media to conduct, assist and foster research and experimentation in the development and evaluation of projects involving television, radio, motion pictures, printed and published materials, and related media of communication, which may prove of

value to State or local educational agencies in the operation of their public elementary and secondary schools, and to institutions of higher education, including the development of new and more effective techniques and methods for utilizing and adapting various media, for training teachers to utilize media to maximum effectiveness, and for presenting academic subject matter through such media. Authorizations terminated at the end of fiscal year 1968.

Part A of the act also supported the use of computers to maximize effectiveness in presenting subject matter; computer-presented instruction; the training of teachers in the use of computers; and research in the area of computers.[1]

			Parts A & B		
	FY 66	FY 67	FY 68	FY 69	FY 70
Authorization	$5,000,000	$5,000,000	$5,000,000		
Appropriation	$4,000,000	$4,400,000	$4,400,000		
Computer Support	$889,959	$1,326,028	$1,599,312	$1,828,154*	$1,065,120*

* Money was authorized originally, but came out of ESEA title IV after NDEA Title VII expired.

V. National Defense Education Act of 1958, title VII, part B, as amended by Public Law 88–210.

The purpose of this part of the act was to disseminate information concerning new educational media, including the results of research and experimentation conducted under part A, to State or local educational agencies for use in their public elementary or secondary schools, and to institutions of higher education. The Commissioner could make studies and surveys to determine the need for increased, or improved utilization of various media, prepare publications which are useful in the encouragement and more effective use of various media, provide assistance to various educational agencies which are undertaking to utilize such media of communications to increase the quality or depth or broaden the scope of their educational programs. As with part A, the authorizations terminated at the end of fiscal year 1968.

This program supported computer applications in the area of demonstration models for various methods of utilizing media effectively, including the development of models for computer-presented instruction.[1]

			Parts A & B		
	FY 66	FY 67	FY 68	FY 69	FY 70
Authorization	$5,000,000	$5,000,000	$5,000,000		
Appropriation	$4,000,000	$4,400,000	$4,400,000		
Computer Support	$389,959	$1,326,028	$1,599,312	$1,828,154*	$1,065,120*

* Money was authorized originally, but came out of ESEA title IV after NDEA title VII expired.

VI. Higher Education Act of 1965, title II, part B, Public Law 89–329.

This purpose of this act is to make grants to institutions of higher education and other public or private agencies, institutions and organizations, for research and demonstration projects relating to the improvement of libraries or the improvement of training in librarianship, including the development of new techniques, systems, and equipment for processing, storing, and distributing information, and for the dissemination of information derived from such research and demonstrations.

This program applies to the use of computers in information systems for the purpose of information storage, retrieval, and processing. It applies to automated information systems and cataloging, and to the training of personnel to use computer-based information systems.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$15,000,000	$15,000,000	$15,000,000	$11,800,000	$28,000,000	$38,000,000
Appropriation	$1,000,000	$3,700,000	$8,200,000	$8,200,000	$4,000,000	$3,900,000
Computer Support		$1,743,186	$503,377	$1,598,978	$840,971	

Administered by: Division of Library Programs, Bureau of Libraries and Educational Technology.

1. An analysis of NDEA VII may be found in: Filep, R. and Schramm, W., *"A Study of the Impact of Research on Utilization of Media for Educational Purposes Sponsored by NDEA Title VII 1958–1968,"* available from Institute for Educational Development, 999 North Supulveda Blvd., El Segundo, Calif. 90245.

VII. Library Services and Construction Act, title III, Public Law 89–511.

This act provides for the systematic and effective coordination of the resources of school, public, academic, and special libraries and special information centers for improved services of a supplementary nature to the special clientele served by each type of library or center.

This program supports computer networks involving libraries, and special projects which libraries undertake, such as computer listings of books or magazines.

	FY 67	FY 68	FY 69	FY 70	FY71
Authorization	$5,000,000	$7,500,000	$10,000,000	$12,500,000	$15,000,000
Appropriation	$375,000	$2,300,000	$2,200,000	$2,200,000	$2,281,000
Computer Support	$14,150	$85,228	$183,237	$61,256	

Administered by: Division of Library Programs, Bureau of Libraries and Educational Technology.

VIII. Vocational Education Act of 1963, Public Law 88–210, as amended by part C of the Vocational Education Amendments of 1968, Public Law 90–576.

This act provides support for research and training activities, experimental or developmental programs and projects, demonstration and dissemination projects, vocational education curriculum development, and studies related to new careers and occupations. The act authorizes the Commissioner to make grants to or contracts with institutions of higher education, public and private agencies and institutions, State boards and, with the approval of the appropriate State Board, to local educational agencies.

Previously supported projects involve: computer-presented instruction, computer models, training of personnel in the use of computers for vocational education, and computer managed instruction for guidance and counseling, etc.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$118,500,000	$177,500,000	$225,000,000	$355,000,000	$565,000,000	$675,000,000
Appropriation	$17,750,000*	$10,000,000*	$13,550,000*	$11,550,000*	$1,100,000*	$17,874,872*
Computer Support	$2,116,616	$696,801	$1,447,139	$999,389		

* Approximately 10% of the appropriation each year supports research activities.

Administered by: Division of Vocational and Technical Education, Bureau of Adult, Vocational and Technical Education.

IX. Mental Retardation Facilities and Community Mental Health Centers Construction Act, of 1963, Public Law 88–164, title III, as amended by Public Law 89–105, as amended by Public Law 90–247.

The Commissioner is empowered by this act to make grants to institutions with the intent of determining new and improved methods for educating handicapped children and to develop systems by which educational personnel can make use of these new methods and techniques. The purposes of this program are carried out through a system of grants, contracts and intramural research.

This act provides for the use of computers in education of the handicapped, computer-presented instruction, computer translation of books to Braille, and the diagnosis of handicaps by computers.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$6,000,000	$9,000,000	$12,000,000	$14,000,000	$18,000,000	$27,000,000
Appropriation	$6,000,000	$8,000,000	$11,000,000	$12,800,000	$16,000,000	$15,000,000
Computer Support	$421,493	$212,413	$525,497	$413,610	$422,456	

Administered by: Division of Research, Bureau of Education for the Handicapped.

X. Instructional Media for Handicapped Children, Public Law 85–905, as amended by Public Law 89–258, as amended by Public Law 90–247, title I.

This act has encouraged the development of a loan service of captioned films for the deaf and the promoting of the educational advancement of handicapped persons through research on the use

of educational media for the handicapped. It authorizes funds for the production and distribution of educational media for the use of handicapped persons, their parents, their actual or potential employers, and other persons directly involved in work for the advancement of the handicapped; and the training of persons in the use of educational media for the instruction of the handicapped.

This program has supported computer based systems for evaluating the effectiveness of media for the handicapped, and the use of computers in the instruction of handicapped persons or of those working with the handicapped.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$3,000,000	$3,000,000	$5,000,000	$5,000,000	$10,000,000	$7,500,000
Appropriation	$2,800,000	$2,800,000	$2,800,000	$4,700,000	$4,700,000	$5,000,000
Computer Support				$200,000	$256,055	

Administered by: Division of Educational Services, Bureau of Education for the Handicapped.

XI. Higher Education Act, title V, of 1965, Public Law 89–239, as amended by the Education Professions Development Act of 1967, part D, Public Law 90–35.

This act was established to improve training opportunities for personnel serving in programs of education other than higher education. Funded projects have attempted to increase the competence of trainers of teacher trainers, both in institutions of higher education and in local and State education agencies.

Funded projects have involved the use of computer-assisted instruction in the training of teachers and the development of courses in the use of the computer as an aid to education.

	FY 69	FY 70	FY 71
Authorization	$70,000,000	$90,000,000	$340,000,000
Appropriation	$80,000,000*	$83,273,000*	$80,600,000*
Computer Support	$30,399		

*Includes funds for parts C and D

Administered by: Media Specialist Program, Division of Educational Technology, Bureau of Libraries and Educational Technology.

XII. Higher Education Act of 1965, Public Law 89–329, title V, as amended by the Education Professions Development Act of 1967, part F, Public Law 90–35.

HEA title V provides: opportunities for experienced vocational educators to spend full time in advanced study of vocational education for a period not to exceed 3 years in length; opportunities to up-date the occupational competencies of vocational education teachers through exchanges of personnel between vocational education programs and commercial, industrial, or other public or private employment related to the subject matter of vocational education, and programs of inservice teacher education and short-term institutes for vocational education personnel.

This program relates to the training of teachers in the field of automated data processing to meet the shortage that exists in this field.

	FY 69	FY 70	FY 71
Authorization	$25,000,000	$35,000,000	$40,000,000
Appropriation		$5,000,000	$6,900,000
Computer Support	$61,261		

Administered by: Division of Program Resources, Bureau of Educational Personnel Development.

XIII. Adult Education Act of 1966, title III, Public Law 89–750, Section 309 (b), (c).

The Commissioner is authorized by this act to make grants for special experimental demonstration projects which involve the use of innovative methods, systems, materials or programs which have national significance. The programs in adult education may be carried out in cooperation with other Federal, federally assisted, State or local pro-

grams which the Commissioner determines have unusual promise in promoting a comprehensive or coordinated approach to the problems of persons with educational deficiencies. Grants are authorized for teacher-training projects for persons engaged, or preparing to engage, in adult education programs designed to carry out the purposes of the act.

The program may support demonstration projects in a wide range of applications of computers to adult education, including computer-assisted instruction.

	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$40,000,000	$60,000,000	$70,000,000	$80,000,000	$210,000,000
Appropriation	$29,200,000	$40,250,000	$45,000,000	$50,000,000	$55,000,000
Computer Support	$250,116	$300,000	$415,000	$501,000	

Administered by: Division of Adult Education Programs, Bureau of Adult, Vocational and Technical Education Programs.

XIV. Elementary and Secondary Education Act of 1965, title I, Public Law 89–10, as amended by Public Law 90–247.

This act provides financial assistance to local educational agencies serving areas with concentrations of children from low-income families for the purpose of expanding and improving their educational programs (including preschool programs) which contribute particularly to meeting the special educational needs of educationally deprived children. The major portion of the funds for this Title are administered by State directors.

This program has supported computer projects involving data processing, computer assisted instruction, computer-managed instruction, and the training of students in the field of computer science.

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71
Authorization	$1,192,981,206	$1,430,763,947	$1,902,136,223	$2,184,436,274	$2,523,172,905	$3,022,144,814
Appropriation	$959,000,000	$1,050,000,000	$119,100,000	$1,123,000,000	$1,396,000,000	$1,500,000,000
Computer Support			$40,000*	$14,500*	$498,628*	$224,429*

*Based on survey of 10 States

Administered by: Division of Compensatory Education, Bureau of Elementary and Secondary Education.

XV. Higher Education Facilities Act of 1963, as amended by Public Law 90–515 in 1968, title VIII.

Title VIII, referred to as Networks for Knowledge, may support projects involving the joint use of facilities such as classrooms, libraries, or laboratories, the joint use of necessary books, materials, and equipment; or affording access to specialized library collections through preparation of interinstitutional catalogs and through development of systems and preparation of suitable media for electronic or other rapid transmission of materials; and the establishment and joint operations involving closed-circuit television or equivalent transmission facilities; and establishment and joint operation of electronic computer networks and programs therefore, to be available to participating institutions for such purposes as keeping financial and student records, recording student course work, or transmitting of library materials.

This act has implications for all joint uses of computers in the area of higher education. Funds, though authorized, were never appropriated for this piece of legislation.

This title, however, specifically states that "Nothing in the Communications Act of 1934, as amended, or in any other provision of law shall be construed to prevent United States communications common carriers from rendering, subject to such rules and regulations as the Federal Communications Commission may prescribe, free or reduced rate communications interconnection services for interconnection systems within the purview of this title, whether or not included in a project for which a grant is made under this title."

	FY 69	FY 70	FY 71
Authorization	$340,000	$4,000,000	$15,000,000
Appropriation	0	0	0
Computer Support	0	0	0

For information contact: USOE's new National Center for Educational Technology.

Summary of Project Information by Subject Category

I. Computer Presented Instruction

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						TOTAL
			1966	1967	1968	1969	1970	1971	
3.	Lawrence Reney Board of Education of Old Saybrook	Shoreline Instructional Multi-media Center	$78,566						$78,566
8.	Joseph H. Oakey Niskayuna Central School District No. 1	A Proposal for a Continuous Program of Independent Study from Elementary Through Secondary Education	22,813						22,813
16.	C. Taylor Whittier Superintendent of Schools	Planning for Innovation	470,112						470,112
21.	Charles Sansone Board of Cooperative Educational Services	An Area Summer Humanities Program on Non-Western Cultures for Northern Westchester County, New York	23,716						23,716
22.	Thomas R. Heslep Altoona City School District	Utilization of Computer-Assisted Instruction to Improve Student Achievement and Faculty Instruction in Secondary School Mathematics and Science	40,194	$82,646	$84,546				207,386
37.	Mary Joan Egan Burnt-Hills-Balston Lake Central Schools	Environmental Learning Center	59,162	37,556	30,000				126,718
46.	Arthur H. Cheney Champlain Valley Union High District #15	Teaching Mathematics Through the Use of a Time Shared Computer		24,502					24,502
47.	E. W. Skarda Sioux Falls Independent School District #1	Planning a Supplementary Educational Center for Continuing Services with Pilot Projects and Operational Programs for Southeastern South Dakota	112,237	175,936	97,289				385,462

I. Computer Presented Instruction—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
48.	Norman B. Scharer Santa Barbara High School District	Computer Uses in Education	81,292						81,292
49.	H. S. Willett School Board of the City of Richmond	Supplementary Mathematics and Science Center	280,156		217,110				497,266
52.	Samuel M. Long Williamsport Area School District	Use of Computer-Assisted Instruction for Mathematics Inservice Education of Elementary School Teachers	63,341						63,341
59.	James A. Hazlett Board of Education of Kansas City	A Computer-Assisted Instruction Laboratory in Mathematics and Science	39,801	7,902					47,703
75.	Merlin L. Morey Marion County Intermediate Education District	Planning a Regional Program of Computer Instruction for High School Students	24,585						24,585
84.	Joseph Strehle Independent School System	Texas Gulf Coast Science Educational Resources Center		408,334	249,977				658,311
94.	Ernest H. Hoeldtke Board of Cooperative Educational Services	Computer-Based Instruction	30,489	195,491	138,531				364,511
97.	George N. Demshock State College Area School District	Use of Computer-Assisted Instruction to Teach Spelling to Sixth Graders		50,315					50,315
99.	W. Robert Gaines Concord-Carlisle Regional School District	Liberty Program		187,984		$20,290			208,274
102.	Stephen A. Kalapas Springfield Township School District	Development of Learning Resources Center and Teacher Inservice Programs for New Technology and Media		32,000	41,728				73,728
105.	William O. Fisher South Cook County Educational Development Cooperation	South Cook County Educational Development Center		400,000	330,803				730,803

121.	Richard Meyering PACAF Headquarters (DPD) Dependent Schools	DOD Dependents Schools Computer Assisted Instruction	85,150			85,150
122.	J. D. Prince McComb Municipal Separate School District	Computer Assisted Instruction in Mathematics	421,725			421,725
130.	John L. Givens Independent School District	Exemplary Junior High School	154,639	158,357	63,740	376,736
136.	Errol C. Rees Multinomah County Intermediate Educational District	Computer-Based Test Development Center		68,483	26,564	95,047
139.	William A. Small Greenfield Public Schools	Franklin County Pilot Studies Program		125,610	88,439	214,049
140.	Bernard E. Donovan Board of Education of the City of New York	Planning a Pilot Implementation of a Computer-Based Instructional System	752,196	1,102,811		1,855,107
145.	David S. Jenkins Board of Education of Anne Arundel County	Multi-Media Course Model Applied to Secondary Education	427,303	480,963	19,000	927,266
146.	George James Dracut Public Schools	Supplementary Research and Technical Skills Training Center	121,326	88,604		209,930
147.	A. Mills Wilber Saginaw Township Community Schools	INDICOM—Individual Communications System		400,000	350,358	750,358
162.	Emmett Cope Bossier Parish School Board	Northwest Louisiana Supplementary Education Center and Services		509,265		509,265
163.	Homer O. Elseroad Board of Education of Montgomery County	Project to Develop Effective Use of Computer-Assisted Instruction in a Large Public School System		165,363		165,363
165.	James A. Hazlett School District of Kansas City	Computer-Assisted Instruction Laboratory in Mathematics and Science		301,585		301,585
167.	Arby B. Carruth Austin Independent School District	Individualized Instruction through a Learner-Centered Multi-Media Approach		139,865		139,865

I. Computer Presented Instruction—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
169.	Roderick Moore Ravenswood City School District	Stanford-Ravenswood Computer-Assisted Instruction Program			1,075,816				1,075,816
170.	Oren Teater Paintsville Board of Education	Individual Computer-Aided Instruction			274,195				274,195
172.	William H. Ohrenberger School Committee	Innovative Implementation of Generalized Academic Simulation Program (GASP)			35,358				35,358
181.	Bernard J. McCormick School District of Pittsburgh	A Commonwealth Consortium to Develop, Implement, and Evaluate a Pilot Program of Computer-Assisted Instruction for Urban High Schools			326,636				326,636
182.	Norman B. Scharer Santa Barbara High School District	Computer Uses in Education			22,322				22,322
189.	Donald W. Dunnan Independent Schools District No. 625	Developing a City Center for Learning			200,000				200,000
190.	Paul A. Miller Board of Education of the City School District of the City of Cincinnati	Pilot Cities Area Demonstration Schools			125,372				125,372
194.	Arnold A. Gruber Joint District No. 8	Individualized Instruction Program for Primary Grade Pupils			100,000				100,000
199.	Desmond M. Bishop Jefferson County Board of Public Instruction	Dovack Method For Teaching Reading			67,004				67,004
200.	William E. Whaley Wakulla County Board of Instruction	A Rural County Computer-Related Instructional Technology Project			172,700				172,700
209.	R. E. Lee Moore County Board of Education	Improved Educational Program Through Inter-School Communications			164,508				164,508
212.	Noble J. Gividen Yorktown Heights	Computer-Assisted Instruction for Handicapped Children				95,585	8,600	76,500	180,685

221. Edgar R. Garrett New Mexico State University	Speech and Language Therapy under an Automated Stimulus Control System	66,091	$62,675	$9,232			$137,988
222. Dana S. Scott Stanford Univ.	Developing New Materials for High School Geometry	50,354	51,192				101,546
224. Patrick Suppes Stanford Univ.	Development of Mathematical Concepts in Children	182,176*	45,547				227,723
225. Richard C. Atkinson Patrick Suppes Stanford Univ.	An Automated Primary-Grade Reading and Arithmetic Curriculum for Culturally Deprived Children	739,946	180,220				920,166
227. Stephen Abrahamson Univ. of Southern California	A Developmental Study of Medical Training Simulators for Anesthesiologists	67,735	136,731	4,364			272,130
234. Ernest Burkman Florida State University	The Development and Evaluation of a Science Curriculum for Grades 7, 8, and 9	416,132	219,174	655,658	266,596	166,703	1,724,263
246. Jesse Richardson Mass. State Dept. of Education	Teaching Mathematics through the Use of a Time-Shared Computer	171,785	13,636				185,421
250. Marina E. Axeen Illinois Univ.	Teaching Library Use to Undergraduate—Comparison of Computer-based Instruction and the Conventional Lecture		6,838				6,838
279. Joseph B. Margolin George Washington University	Education in the Seventies—A Study and Description of Model School Systems of the Next Decade, Utilizing Computer-Assisted Instruction		57,989				57,989
283. Robbin R. Hough Michigan State University	Development and Testing of a Systems Model of the Classroom Relevant to Classroom Teaching and Computer-Assisted Instruction		9,864				9,864
297. John M. Flynn Nova University of Advanced Technology	Frame Size, Frame Content, and Criterion Measures in Auto-Instruction and the Prediction of Learner Success			9,946			9,946
303. S. D. Conte Purdue Research Foundation	Computer-Assisted Instruction in Teaching Numerical Methods			10,000			10,000
317. Roger L. Sisson Martin F. Stankard Pennsylvania Univ.	Optimal Use of a Computer-Based Instruction System in an Existing Urban School District			9,458			9,458

* Includes funds from previous years

I. Computer Presented Instruction—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
319.	Richard C. Atkinson Stanford University	Computer-Based Instruction in Spelling—An Investigation of Optimal Strategies for Presenting Instructional Material			8,775				8,775
328.	Alexander Tolor Fairfield University	An Evaluation of a New Approach in Dealing with High School Underachievement				9,990			9,990
334.	Walter R. Ihrke Connecticut University	An Experimental Study of the Effectiveness and Validity of an Automated Rhythm Training Program			9,891				9,891
337.	Gerald L. Natkin Bucknell University	Research and Theory on the Effects of Instructional Sequencing				9,298			9,298
339.	William P. Kent System Development Corp.	Feasibility and Requirements for Computerization of Elementary Music Instruction Through Electronic Keyboard Interaction				89,423	89,427		178,850
344.	Richard C. Atkinson Stanford University	Methods of Maximizing the Learning Process				68,862			68,862
357.	Richard J. Hill Wisconsin University	Computer-Assisted Affective Feedback as a Means of Improving Small Group Instruction				9,609			9,609
362.	Charles S. Thomas State University of New York	The Definition of Behavioral Objectives and Development of New Instructional Techniques to Promote Specified Behaviors for the Unit, "The Cell," in the Course, Principles of Biology				9,931			9,931
369.	Jack J. Heller Connecticut University	Graphic Representation of Musical Concepts: A Computer-Assisted Instructional System				9,975			9,975
373.	Patrick Suppes Stanford University	Mathematical Models of Elementary Mathematics Learning and Performance					108,000	162,975	270,975
374.	Harold F. O'Neil Florida State University	Effects of State Anxiety and Programming Variables on Performance in Computer-Assisted Learning					27,910		27,910
384.	Lawrence M. Stolurow Harvard University	Research and Development for Interactive Teaching of Russian Vocabulary					4,988		4,988
385.	George W. McConkie Cornell University	An Examination of the Effects of a New Curriculum Technique on Retention and Understanding					8,905		8,905

388. Floyd G. Delon South Central Regional Lab. Corp.	South Central Regional Educational Laboratory	180,705	451,000	710,728	320,067		1,662,500
390. James Becker Research for Better Schools, Inc.	Research for Better Schools	1,466,439	603,377	2,094,335	2,757,589	3,396,950	10,318,690
391. Lawrence Fish Northwest Regional Educational Laboratory	Northwest Regional Educational Laboratory	516,610	1,350,706	1,565,525	1,863,473	1,841,424	7,137,738
392. Wade M. Robinson Central Midwestern Regional Educational Laboratory	Central Midwestern Regional Educational Laboratory	695,082	805,640	1,370,143	1,746,125	2,221,013	6,838,003
404. Wesley W. Posvar Pittsburgh University	Educational Research Facility Construction at the University of Pittsburgh				5,628,719		5,628,719
405. Robert D. Hess Stanford University	Noncurricular Effects of Educational Technology—The Computer as a Socializing Agent, Stanford Center for Research and Development in Teaching, Project 0602						
407. Robert F. Peck Texas University	Research and Consulting Divisions						
408. Nancy Karweit Johns Hopkins University	The Computer as a Responsive Educational Environment						
409. Robert Glaser Pittsburgh University	Computer-Assisted Instruction Program						
416. Karen Block Richard Roman Learning Research and Development Center	Computer-Assisted Instruction						
417. Research for Better Schools, Inc.	Computer Assisted Instruction						
418. R. D. Hess Stanford Center for Research and Development in Teaching	Student Motivation and Engagement in Dyadic Learning Situations						
424. Patrick Suppes J. A. Van Campen	Application of Mathematical Learning Theory to Second-Language Acquisition with Particular Reference to Russian			104,425			104,425

I. Computer Presented Instruction—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
430.	Rob Roy Rensselaer Polytechnic Institute	Computer Aided Instruction for a Course in Boolean Algebra and Logic Design	9,450						9,450
431.	Frank Marzocco Robert H. Davis Michigan State University	Methods of Presenting Programed Instructional Materials by Teaching Machine and Computer	32,384						32,384
432.	Mary A. MacDougall Virginia Univ.	Methods of Presenting Programed Science Materials to Fourth Grade Pupils of Varying Ability and Achievement	33,448	31,492					64,940
433.	Kenneth H. Wodtke Pennsylvania State University	Random Versus Ordered Sequencing in Computer-Assisted Instruction	8,400						8,400
434.	Patrick Suppes Richard Atkinson Stanford Univ.	Stanford Program in Computer-Assisted Instruction	385,113	559,356	74,053				1,018,522
439.	Duncan Hansen Florida State University	Research and Implementation of Collegiate Instruction of Physics via Computer-Assisted Instruction		236,734					236,734
442.	Ned C. Deihl Pennsylvania State University	Development and Evaluation of Computer-Assisted Instruction for Instrumental Music		19,066	22,920	6,470			48,456
446.	Karl Zinn Univ. of Michigan	An Evaluative Review of Conversational Uses of Computers in Education				69,780			69,780
447.	Alexander Schure New York Institute of Technology	Development of a Multi-Media Course in Physics for the U.S. Naval Academy			375,000	525,000	245,000		1,145,000
449.	Donald Tosti Westinghouse Learning Corp.	Development of a Multi-Media Course in Leadership for the U.S. Naval Academy			400,000	500,000	450,000		1,350,000
451.	Harold Mitzel Pennsylvania State University	The Development and Presentation of Four Different College Courses by Computer Teleprocessing	219,059						219,059

453. Ralph W. Gerard	A Workshop Conference on Computer Aided Instruction and on the Impact of Computer Systems on Universities	21,329					21,329
454. Don Bushnell Brooks Foundation	The Computer: A New Media for The Improvement of Instruction	10,769					10,769
473. Thomas P. Slavens Michigan University	The Development and Testing of Materials for Computer-Assisted Instruction in the Education of Reference Librarians				68,045		68,045
490. Lassar G. Gotkin New York University	The Development of a Beginning Reading Skills Program Using the Edison Responsive Environment Instrument	110,634	56,077	70,700			237,411
491. Harold E. Mitzel George L. Brandon Pennsylvania State University	Experimentation with Computer-Assisted Instruction in Technical Education	475,081		206,000	273,130		954,211
496. T. Smith Florida State Univ.	The Development of Prevocational Education Literacy Courses for Use with Computer-Assisted Instruction of Disadvantaged Youths and Adults	110,183	113,304				223,387
498. Gilbert B. Rozran Systems Operation Support, Inc.	A Study of the Effectiveness of a Military-Type Computer-Based Instructional System When Used in Civilian High School Courses in Electronics and Auto Mechanics	141,108					141,108
501. George McGregor Providence College	Inservice Training in Computer-Assisted Instruction for Vocational Teachers		19,926				19,926
515. Joe Glenn Coss Downey Unified School District	Project Effectiveness of Automated Visual Programmed Instruction With Paraplegic and Other Severely Handicapped Students	43,704					43,704
519. Patrick Suppes Stanford University	Computer-Assisted Instruction in Mathematics and Language Arts for the Deaf					422,456	422,456
522. Douglas M. Fellows The State of Conn. through the Dept. of Educ. and the Commission for Higher Educ.	A Proposal to Develop a Cadre of Educational Experts in Computer-Assisted Instruction for the State of Connecticut				10,368		10,368
523. C. Alan Riedesel Penn State University	Summer Institute of Computer-Assisted Instruction Courses for Teachers from Pittsburgh & Philadelphia				20,036		20,036

I. Computer Presented Instruction—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING 1966	1967	1968	1969	1970	1971	TOTAL
526.	E. J. Boone North Carolina State Univ.	A Program for Training State and University Level Adult Basic Education Personnel in Techniques of Computer-Assisted Instruction (CAI) and Programmed Instruction (PI)				40,000			40,000
528.	North Carolina State University	Developmental and Demonstration Project in the Use of Modern Educational Technology for Instruction of Undereducated Adults—Phase IV							
535.	Charles R. Mekeel School District of the City of Chester	Talking Typewriter			40,000	1,500	1,500	1,500	44,500
537.	Colonel Maurice Roach	Elementary Achievement Emphasis-Computer-Assisted Instruction in Mathematics							
538.	Richard Smith State College at Millersville	Computer-Assisted Instruction						80,000	80,000

II. Problem Solving in Instruction

38.	Walter Goodman Board of Cooperative Educational Services	The Establishment and Maintenance of a Center for the Demonstration of Computer-Aided Instructional Systems and Other Complex Educational Media	$64,019	$58,350					$122,369
53.	Byron B. Williams School District #3	Dispersed Supplementary Educational Services Center		351,997	$313,329	$200,000			865,326
57.	William Merz Clark County School District	Mathematics Computer Center		8,101	54,864	40,020			102,985
69.	Ralph C. Morris Polk County Board of Education	Area XI Regional Project "Access"		199,990		180,500			380,490

87.	Forbes Bottomly Seattle School District #1	Puget Sound Arts and Science Center		634,314	542,990	199,461	1,376,765
103.	Ann Waterhouse South Portland Board of Education	South Portland Curriculum Project—Use of a Time-Shared Computer			38,486	40,027	78,513
106.	Erwin A. Gallagher School Department of Westwood	Laboratory Program for Computer-Assisted Learning		98,295		23,509	121,804
117.	Carl J. Dolce Orleans Parish School Board	Problem Solving—Computer Style		81,299	92,000		173,299
152.	Fay Harbison Newport-Mesa UNIF School District	Space Science Learning Program			72,762	72,000	144,762
153.	Joseph J. Lancaster Independent School District	Training in Computer Use in High Schools for Increasing the Range and Depth in Mathematical Skills and Concepts			62,146		62,146
154.	Dustin W. Wilson Dover Special School District	(EDTECH) Educational Development Through Technology			224,674		224,674
177.	Wallace S. Manning School District #91	Mathematics Resource Center			50,390	50,435	100,825
184.	William L. Cunningham Hayward Unified School District	Project Adair: Automated Data Analysis for Instruction and Research			63,380		63,380
197.	Stuart S. Philips Oakland Unified School District	Urban Studies Center—A Prototype Program in Urban Education			251,000	121,392	372,392
223.	J. A. Starkweather California Univ.	Computer Science Instruction in Elementary Grades	57,159	76,212	19,050		152,421
246.	Jesse Richardson Mass. State Dept. of Education	Teaching Mathematics through Use of a Time-Shared Computer	171,785	13,636			185,421
284.	Eliezer Naddor Johns Hopkins University	Inventory Systems Laboratory		3,700			3,700
285.	D. G. Lewis General Learning Corporation	A Feasibility Study of a Central Computer Facility for an Educational System		129,050			129,050

II. Problem Solving in Instruction—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING 1966	1967	1968	1969	1970	1971	TOTAL
311.	Barrett Hazeltine Brown University	Instruction Using Experiments in a Computer			5,500				5,500
312.	Gilbert Shapiro Boston College	Programming for the Facile Use of the IBM 360 Computer as a Labortory Instrument in Social Science Statistics Courses				9,594			9,594
342.	Warren H. Thomas State University of New York	The Development of a Statistical Experiment Simulator				13,789			13,789
352.	Peter W. House Environmetrics, Inc.	Development of City III: An Operational Simulation Model for Training and Research				76,429			76,429
360.	Paul F. Feldker Saint Louis Jr. College District	Simulation with a Digital Computer Versus the Conventional Laboratory Experience in Calculus Level Introductory Physics				3,385			3,385
365.	Milton D. Jacobson Virginia University	Development of Computer-Simulated Law Games and Teaching of Logical Thought in the Field of Social Studies			9,978				9,978
367.	Harvey E. Schmidt St. Louis Jr. College	The Use of the Computer as a Unique Teaching Tool for Introductory Calculus			3,153				3,153
370.	Douglas D. McNair Institute for the Study of Inquiring Systems	Design for a High School Business Game			8,851				8,851
386.	John J. Fremer Educational Testing Service	Preparation of a Filmstrip Unit on Basic Measurement Principles					16,410		16,410
413.	James McNamara Brent M. Rutherford Center for the Advanced Study of Educational Administration	Advanced Educational Planning							
448.	J. Sterling Livingston Sterling Institute	Development of a Multi-Media Course in Economics for the U.S. Naval Academy			240,660	302,220	100,120		643,000
470.	Pauline Atherton Syracuse Univ.	Development of a Computer-Based Laboratory Program for Library Science Students Using L.C./Marc Tapes			104,480				104,480

502.	Alex G. Morphonios Miami-Dade Junior College	Computer-Aided Drafting and Design Summer Institute		19,762				19,762
505.	Charles W. Mink San Mateo Union High School District	Coordination of Organic Curriculum Development in the Public Schools of San Mateo, California			22,568	36,025		58,593
513.	Calvin C. Nelson University of Southern California	A Planning Project to Study the Feasibility of Computer Production of Braille Materials for Public School Blind Children		9,600				9,600
514.	Bruce M. Siegenthaler Harold E. Mitzel Pennsylvania State University	The Development and Programming of a Simulated Pure Tone Audiometer		78,025				78,025
533.	Gene M. Satin Board of Education of the City of New York	Three Junior High School Teenage Academies				203,092		203,092
534.	William E. Valentine Board of Education, N.Y.	Operation Forward					56,481	56,481
536.	Raymond Dombrowski Erie Public Schools Federal Programs Dept.	Computer Science Education Program				1,523	2,988	4,511

III. Instructional Guidance and Management

2.	Richard M. Fawley Boulder Valley School District	A Computerized Approach to the Individualizing of Instructional Experiences	$46,035					$46,035
10.	R. W. Lambuth McComb Municipal Separate School District	Student Programming and Counseling Assistance by Data Processing for Southwest Mississippi	113,766	$179,368				293,134
17.	James H. Beaird Multnomah County Intermediate Education District	Computer-Based Test Development Center	12,742					12,742
27.	Willis F. Shaw Suburban School Service Joint Board	Coordinated Data Processing Service and Facility	56,225					56,225

III. Instructional Guidance and Management—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
34.	Murray Tondow Superintendent of Palo Alto Unified School District	Palo Alto Unified School District Computer-Based Student Course Selection Program	55,355						55,355
55.	J. Revis Hall Anniston City Board of Education	Personalization of Learning Achieved through Organic-Evaluation	102,277	74,321	$350,264				526,862
61.	Floyd McLeod Anniston City Schools	Educational Reorganization and Reorientation Through the Personalization of Instruction	54,485						54,485
78.	Bonnie Marriage Clovis Public Schools	Project to Provide an Automated Learning Center for the Clovis Senior High School	39,205	54,087		$19,350			112,642
92.	Richard M. Fawley Boulder Valley School District Re 2	A Computerized Approach to the Individualizing of Instructional Experiences			147,737				147,737
110.	Robert D. Ishee Geauga County Board of Education	Project Teacher—Teacher Education and Child Help Through Educational Research		100,000	83,038				183,038
112.	Wayne A. Whyte Lorain County Board of Education	Lorain County Supplementary Educational Center		53,664					53,664
144.	Murray Tondow Palo Alto Unified School District	Computer-Based Course Selection Program		52,719					52,719
154.	Dustin W. Wilson Dover Special School District	(EDTECH) Educational Development Through Technology			224,674				224,674
164.	William H. Ohrenberger School Committee	Innovative Implementation of Computer-Aided Instruction			76,994				76,994
166.	Bill Crutcher Independent School District No. 30	Planning A Computer-Assisted Counseling Center			50,000				50,000
178.	Lowell Smith Syracuse City School District	Individualized Instruction in Prototype School			164,734	185,737			350,471
187.	F. Gregg Rybinski Public Schools District 99	Evaluation for Individualized Instruction			203,600	167,426			371,026

201. John W. Letson Atlanta Board of Education	Systems Approach to Community Educational Improvement				252,418		252,418
218. J. H. Wanamaker Board of Education of the Youngstown City School District	M. G. Student Computer Oriented Program—Education (SCOPE)		25,000				25,000
228. J. A. Easley Illinois Univ.	A Project to Develop and Evaluate a Computerized System for Instructional Response and Analysis	73,970	75,726				149,696
296. Robert B. Kane Purdue Research Foundation	Reduction of Errors due to the Position of Items in the Administration of the Semantic Differential Questionnaire			9,998			9,998
298. David D. Woodbridge Florida Institute of Technology	A Method for Evaluating Student Progress in Undergraduate Computer Science by use of Automated Problem Sets			7,780			7,780
330. Glen F. Ovard Brigham Young University	Research, Development and Validation of the Daily Demand Computer Schedule				9,796		9,796
345. Melvin R. Novick Educational Testing Service	Bayesian Methods for Computer				68,862		68,862
351. Norman R. Dodl Florida State University	A Feasibility Study of the Florida State University Model for the Preparation of Elementary School Teachers				40,000		40,000
358. Dennis E. Nelson American Instit. for Research in Behavioral Sciences	Improvement of Academic Performance and Attitudes Within a Computer Managed System of Individualized Instruction in a Low Socioeconomic Secondary School				141 319		141,319
377. Edward W. Pepyne Hartford University	The Development and Evaluation of an Interactive Computer System for Use in Counselor Education and Assessment					9,953	9,953
380. William J. Kardash Creative Concepts, Inc.	The Feasibility of Computer-Assisted College Selection as a Guidance Counseling Aid					9,650	9,650
383. Theron D. Rocjhill State University of New York	Computer Based Resource Units in Pre-Calculus Mathematics					10,000	10,000
389. Richard Schutz Southwest Regional Educational Laboratory	Southwest Regional Laboratory for Educational Research and Development	894,725	1,570,000	2,235,000	2,486,726	3,023,805	10,210,256

III. Instructional Guidance and Management—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
390.	James Becker Research for Better Schools, Inc.	Research for Better Schools	1,466,439	603,377	2,094,335	2,757,589	3,396,950		10,318,690
391.	Lawrence Fish Northwest Regional Educational Laboratory	Northwest Regional Educational Laboratory	516,610	1,350,706	1,565,525	1,863,473	1,841,424		7,137,738
394.	Del H. Schalock Northwest Regional Educational Laboratory	A Competency Based, Field Central Systems Approach to Elementary Teacher Education				163,000			163,000
395.	Upper Midwest Regional Educational Laboratory	Developing Behaviorally Engineered Educational Environments							
400.	M. L. Abbott Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: Project on the 1130 Admissions Information System							
402.	Bard F. White Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: University Admissions Information System (UAIS) Project							
410.	John Bolvin Pittsburgh University	Individualization of Education Program Learning Research and Development Center				9,841			9,841
411.	Henry Van Engen Wisconsin University	Prototypic Instructional Systems: Elementary Mathematics							
414.	Herbert J. Klausmeier Wisconsin Research & Development Center for Cognitive Learning	Individually Guided Education							

415. Richard Ferguson Learning Research and Development Center	Computer Application						
444. Alexander Schure John Thesbald New York Institute of Technology	A Computer-Managed System for Individualizing and Optimizing Education			296,880	424,684	270,000	991,564
447. Alexander Schure New York Institute of Technology	Development of a Multi-Media Course in Physics for the U.S. Naval Academy			375,000	525,000	245,000	1,145,000
449. Donald Tosti Westinghouse Learning Corp.	Development of a Multi-Media Course in Leadership for the U.S. Naval Academy			400,000	500,000	450,000	1,350,000
494. John F. Cogswell System Development Corporation	Use of Computer Technology in Vocational Counseling	179,625					179,625
504. David V. Tiedeman and others Harvard University	An Information System for Vocational Decisions	219,949	415,000	622,989	544,827		1,802,765
506. John C. Flanagan American Institute for Research in Behavioral Sciences	A Computer-Based Vocational Guidance System			90,000	122,666		212,666
507. Donald P. Estevan Harry F. Silberman System Development Corporation	Implementation of Vocational Counseling System			96,867			96,867
508. David V. Tiedeman Harvard University	Invitational Conference on Computer-Assisted Guidance Systems and Their Implications for Counseling Practice and Education				22,741		22,741
539. M. B. Neely	Computer-Assisted Instruction					44,000	44,000

IV. Long-Term Training and Curriculums

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
27.	Willis F. Shaw Suburban School Service Joint Board	Coordinated Data Processing Service and Facility	$56,225						$56,225
60.	Scott D. Thomson Hayward Unified School District	Automated Data Analysis for Instruction and Research	21,685						21,685
68.	Lee R. Gilbert School City of Gary	Computer and Math Programming	21,242	$3,477	$18,999				43,718
70.	Byron Anger Traverse Bay Intermediate School District	Dynamic Multiphase Area-Wide Data Processing Curriculum	27,771						27,771
72.	H. E. Guzniczak School District No. 5	Data Processing Instruction Center	11,099						11,099
79.	David Wyllie Board of Education	Regional Instructional Computer Center		160,026	222,050				382,076
90.	William C. Hinkley Adams-Arapahoe School School District 28-J	Air Age Vocational Program			25,986				25,986
93.	J. O. Lancaster Concordia Parish School Board	Educational Automation		97,880	79,029				176,909
94.	Ernest H. Hoeldtke Board of Cooperative Educational Services	Computer Based Instruction	30,489	195,491	138,531				364,511
95.	D. L. Wise Delaware County Board	Instructional Program in Modern Concepts of Engineering for All Secondary Teachers and Students			79,286	$78,286	$55,000		212,999
99.	W. Robert Gaines Concord-Carlisle Regional School District	Liberty Program		187,984		20,290			208,274
100.	Harold Enestredt Suburban School Services Joint Board	Total Information for Educational Systems		274,203					274,203

102.	Stephen A. Kalapas Springfield Township School District	Development of Learning Resources Center and Teacher Inservice Programs for New Technology and Media	32,000	41,728		73,728
103.	Ann Waterhouse South Portland Board of Education	South Portland Curriculum Project—Use of a Time-Shared Computer		38,486	40,027	78,513
111.	Franklin B. Walter Westlake Board of Education	Planning for Computer Instruction	17,430			17,430
126.	R. N. Tydings Hobbs Municipal Schools	Lea County Data Processing Center	71,363		32,250	103,613
127.	Merlin L. Morey Marion County I.E.D.	Computer Instruction Network	31,169	170,772		201,941
143.	H. E. Guzniczak School District #5	Data Processing Instruction Center	179,988	165,373		345,361
152.	Fay Harbison Newport-Mesa Unif School District	Space Science Learning Program		72,762	72,000	144,762
153.	Joseph J. Lancaster Independent School District	Training in Computer Use in High Schools for Increasing the Range and Depth in Mathematical Skills and Concepts		62,146		62,146
154.	Dustin W. Wilson Dover Special School District	(EDTECH) Educational Development Through Technology		224,674		224,674
156.	William Gelston Traverse Bay Area Intermediate School District	Vehicle for Change		198,428		198,428
173.	Herbert A. Korey Long Branch Board of Education	Monmouth Education Council		94,196		94,196
176.	Leslie P. Evans Independent School District	Cooperative Improvement of Educational Opportunity		53,000		53,000
184.	William L. Cunningham Hayward Unified School District	Project Adair: Automated Data Analysis for Instruction and Research		63,380		63,380

IV. Long-term Training and Curriculums—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
185.	Otto C. Hufziger Wethersfield Board of Education	Project Remodel			78,383				78,383
193.	H. M. Gilmore Everett Intermediate District 8	Coordination of Resource Personnel Services				55,295	60,000	$40,000	155,295
200.	William E. Whaley Wakulla County Board of Instruction	A Rural County Computer-Related Instructional Technology Project			172,700				172,700
202.	Jerry L. Evans School District No. 422	Educational Circumferential Information System (E.C.I.S.)			120,000				120,000
232.	John Schmid University of Northern Colorado	Research Training and Development Program at U.N.C.	42,208	50,771	37,235	30,700	17.500		178,414
233.	Edward Krahmer North Dakota University	A Graduate Program Training Educational Researchers for Rural America		67,300	59,200	52,350	6,300		185,150
236.	R. Darrell Bock Chicago University	Statistical Laboratory Development Program	12,934						12,934
237.	Jason Millman Cornell University	Graduate Training Program for Research Methodologists	24,000	24,300	26,200	29,100	29,100		132,700
238.	Sam D. Sieber Columbia University	Training for Research in Sociology of Education	18,900						18,900
239.	James I. Doi Michigan University	Institutional Research	17,500	28,100	29,000	46,800	42,400		163,800
242.	William W. Cooley Amer. Inst. for Research in Behavioral Sciences	Program for Training in Computer and Multivariate Applications to Educational Research	30,000						30,000
252.	Robert W. Dixon Michigan University	Michigan Interdisciplinary Research Training Program	48,000	46,900	48,400	45,600	41,750		230,650

253. Sam D. Sieber Columbia University	Training for Research in Sociology of Education	54,000	63,400	57,100	50,550	50,550	275,600
254. Frederick B. Davis Pennsylvania University	Graduate Training Program in Educational Measurement, Evaluation, and of Experimental Research	55,300	64,300	75,800	71,600	74,400	341,400
255. Jackson B. Reid Texas University	Multidisciplinary Graduate Program for Preparation of Educational Research Specialists	120,000	123,400	124,800	131,600	124,000	623,800
256. Ellis R. Page Connecticut University	Graduate Training Program for Educational Researchers with Computer Competence	60,000	55,300	70,200	67,100	67,100	319,700
257. Merle P. Eyman Southwestern Ohio Educational Research Council	An Educational Research Training Center Sponsored by the Southwestern Ohio Educational Research Council, Inc.	72,000	72,500	73,400	71,300	41,900	331,100
258. Jerome Manis Western Michigan University	Graduate Research Training Program in Sociology of Education	24,000	24,100	25,400	38,600	38,600	150,700
259. James F. Greene Georgia University	Improving Research Skills in Major School Subjects	15,120					15,120
260. Warren G. Findley Georgia University	Postdoctoral Research Training Program in Educational Stimulation	15,000					15,000
261. Robert Craig Michigan State University	Graduate Training Program for Directors of Research	72,000	69,700	74,500	61,500	74,500	352,200
265. Edward Y. George Bentley College of Accounting and Finance	Development of a Mathematics Curriculum for Undergraduate Business Students		3,400	5,600			9,000
269. William J. Moore Bucknell Univ.	Development of an Internship and a Computer-Based Research Program as an Integral Part of a Graduate Program in Educational Research	19,980					19,980
289. Ellis Page Connecticut University	Postdoctoral Fellowship Program in Educational Research		23,571				23,571
314. Neil S. Humphries Commonwealth Development Assn. Harrisburg, Pa.	Curriculum Development Mobile Instruction Laboratory for Educators			29,829			29,829

IV. Long-term Training and Curriculums—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
315.	Herbert A. Smith National Science Teachers Assn.	The Development of Materials for the Training of Science Education Personnel in Educational Technology			65,458	54,998			120,456
320.	William W. Cooley and others Pittsburgh Univ.	Post Doctoral Fellowship Program in Educational Research			42,000				42,000
321.	Lee J. Cronbach and others Stanford Univ.	Post Doctoral Fellowship Program in Educational Research			20,904				20,904
322.	Lee J. Cronbach and others Stanford Univ.	Post Doctoral Fellowship Program in Educational Research			18,850				18,850
329.	William T. Husung, Jr. Citrus Coll. Foundation	A Study of the Effects of Automation on the Nature of the Work of the Draftsman in Industry, and the Innovative Programs of Instruction for Automated Drafting in Selected Junior Colleges in California To be Used for Curricular Revision				8,801			8,801
331.	Ellis W. Roberts INTECH Corp.	Educators Information Technology System				242,108			242,108
332.	William Lichten Yale University	A Scientist in Residence in a Public High School				3,870			3,870
338.	Patricia Breslin INTECH Corp.	Education Information Technology System				258,147			258,147
348.	Darrell R. Bock Chicago University	Statistical Laboratory Development Program —Phase II				49,638	38,114	17,209	104,961
355.	Victor C. Bunderson Texas University	Postdoctoral Fellowship Program in Educational Research				17,300			17,300
364.	Patricia B. Brislin INTECH Corp.	Development of Instructional Materials for Training in Computer Uses					319,973		319,973
379.	Marilyn N. Suydam Pennsylvania State University	Translation of CAI Course for Teachers of Elementary School Mathematics					9,899		9,899

438. James W. Altman American Institute for Research in Behavioral Sciences	Orientation of Educators and Behavioral Scientists of Information Systems		107,146				107,146
475. Laure M. Sharp Bureau of Social Science Research, Inc.	Overview of the Library Fellowship Program				17,420		17,420
493. Kendrick F. Bangs Colorado Univ.	Curricular Implications of Automated Data Processing for Educational Institutions	153,960					153,960
495. Douglas M. Fellows Hartford Univ.	Experimental Curriculum for Electro-Mechanical Technicians in Computer and Business Machines Technology	76,000	15,800	7,000			98,800
500. Lewis E. Wall Colorado State University	A Study of the Effectiveness of Federally Supported Business Data Processing Summer Institutes	14,400					14,440
501. George McGregor Providence College	Inservice Training in Computer-Assisted Instruction for Vocational Teachers		19,926				19,926
504. David V. Tiedeman and others Harvard University	An Information System for Vocational Decisions under Section 4(c) of the Vocational Education Act of 1963	219,949	415,000	622,989	544,827		1,802,765
520. G. Phillip Cartwright Penn State University	Development of a Computer-Assisted Course in the Identification & Diagnosis of Handicapping Conditions in Children				196,341		196,341
521. Bernice Kipfer Syracuse City School District Department of Special Educ.	Computer-Based Project (Phase II)				200,000	256,055	456,055
522. Douglas M. Fellows The State of Conn. through the Dept. of Educ. and the Commission for Higher Educ.	A Proposal to Develop a Cadre of Educational Experts in Computer-Assisted Instruction for the State of Connecticut				10,368		10,368
523. C. Alan Riedesel Penn State University	Summer Institute of Computer-Assisted Instruction Courses for Teachers from Pittsburgh & Philadelphia				20,036		20,036
524. Lewis E. Wall Western Illinois Univ.	Summer Institute of Computer-Assisted Instruction Courses for Teachers				51,261		51,261

IV. Long-Term Training Curriculums—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
525.	Robert M. Gordon University of California	A Vocationally Related Program to Provide Trained Teachers for a Post-High School Sequences of Occupational Courses in Electronic Data Processing				10,000			10,000
531.	Harris M. Taylor Department of Federal Programs	Data Processing Projects at Cardozo and Dunbar High Schools					33,756	39,460	73,216
532.	Gene M. Satin Office of State and Federally Assisted Programs	District 6 Open Enrollment Program (1969–70)					151,088		151,088

V. Short-term Training

57.	William Merz Clark County School District	Mathematics Computer Center	$8,101	$54,864	$40,020				$102,985
75.	Merlin L. Morey Marion County Intermediate Education District	Planning a Regional Program of Computer Instruction for High School Students	24,585						24,585
170.	Oren Teater Paintsville Board of Education	Individual Computer-Aided Instruction			274,195				274,195
182.	Norman B. Scharer Santa Barbara High School District	Computer Uses in Education			22,322				22,322
247.	Russell T. Gregg Univ. of Wisconsin	Research Training Institute for Personnel of the State Departments of Education		35,942					35,942
248.	James J. Fast Association for Educational Data Systems	The Relationship of Automatic Data Processing Training Curriculum and Methodology in the Federal Government		19,878					19,878

249. John Schmid Colorado State College	Training Institute for Research Personnel in the Theory of Multiple Regression Formulation of Problems and Computer Utilization		4,725			4,725
251. Garry R. Walz American Personnel and Guidance Assoc. Washington, D.C.	The Design and Implementation of Information Systems for Pupil Personnel Services		8,236			8,236
262. Earle T. Hawkins Towson State College	Conference on Curricular and Instructional Innovation in State Colleges and Universities	34,520				34,520
276. Roger P. Phelps New York University	Seminar in State Music Supervision		9,238			9,238
279. Joseph B. Margolin George Washington University	Education in the Seventies—A Study and Description of Model School Systems of the Next Decade, Utilizing Computer-Assisted Instruction		57,989			57,989
280. Thomas Long Altoona Area School District	Counselor Training in Statistical Analysis Via Electronic Processing for Research on Local and Regional Student Data		9,867			9,867
287. John E. Stecklein Minnesota University	A Coordinated Network of Institutional Research Workshops		14,839			14,839
288. Harry B. Lincoln State University of New York	Development of Computerized Techniques in Music Research with Emphasis on the Themetic Index		10,000			10,000
290. Robert E. Hill Ball State University	Advanced Educational Research Institute for Small College and University	54,982				54,982
326. Thomas Long Altoona Area School District	Counselor Research Training			9,956		9,956
333. Neal E. Vivian Ohio State University	Special Project for Research Training in Vocational Education: Professional Pre-Session				$11,423	11,423
336. James W. Popham American Educational Research Association	AREA 1969—Research Training Sessions				97,647	97,647
341. Charles Kaduskin Columbia University	Sociometric Clique Identification				9,951	9,951
396. Duane Richardson Northwest Regional Educational Laboratory	Relevant Educational Applications of Computer Technology (Program REACT)					

V. Short-term Training—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING 1966	1967	1968	1969	1970	1971	TOTAL
453.	Ralph W. Gerard University of California	A Workshop Conference on Computer-Aided Instruction and on the Impact of Computer Systems on Universities	21,329						21,329
502.	Alex G. Morphonios Miami-Dade Junior College	Computer-Aided Drafting and Design Summer Institute		19,762					19,762
503.	Francis Tuttle Oklahoma State Board for Vocational Education	Summer Institute to Train Data Processing Teachers for the New Oklahoma State-Wide Computer Science System, Phase II		35,000					35,000
508.	David V. Tiedeman Harvard University	Invitational Conference on Computer-Assisted Guidance Systems and Their Implications for Counseling Practice and Education				22,741			22,741
526.	E. J. Boone North Carolina State Univ.	A Program for Training State and University Level Adult Basic Education Personnel in Techniques of Computer-Assisted Instruction (CAI) and Programmed Instruction (PI)				40,000			40,000

VI. Specialized Data Development and Analysis

229.	Ellis B. Page Connecticut Univ.	Analysis of Essays by Computer	$74,081						$74,081
235.	Thomas F. Pettigrew Harvard University	Study of School Integration	96,908	$75,454	$31,353				203,715
266.	Gene V. Glass Illinois Univ.	Analysis of Time-Series Quasi-Experiments		4,256					4,256
272.	Arnold Reisman University of Wisconsin	Flow of Doctorate Holders into College and University Staffs		9,940					9,940
274.	Donald Zimmerman East Carolina College	An Investigation of Non-Independence of Components of Scores on Multiple Choice Tests		7,128					7,128

275. Jack N. Sparks Pennsylvania State University	Effects of Inapplicabilities of the Continuity Condition upon the Probability Distribution of Selected Statistics and Their Implications for Research in Education	8,933			8,933
299. Kenneth S. Goodman Wayne State University	A Study of Reading Miscues that Result in Grammatical Changes in Sentence Structure by Children		10,000		10,000
309. Nancy L. Dill Columbia University	A Study of Exploring the Applicability of Network Analysis as a Means of Describing and Comparing Selected Instances of the Curriculum Change Process		9,469		9,469
310. Richard C. Nelson Pennsylvania State University	Biomechanics of Normal and Treadmill Running		10,000		10,000
316. Donald Leton Hawaii University	Computer Program to Convert Word Orthography to Phoneme Equivalents	14,517			14,517
323. John W. Wick Northwestern University	The Initial Development of a Technique for Deriving Additional Information from Test Performance		9,996		9,996
324. Donald Gerwin Wisconsin University	A Proposal for Research on the Determination of Teacher Salary Increases		8,053		8,053
325. John J. Bruha University of Southern Calif.	Stimulus Approach Tendencies of Learners as a Factor in Instructional Materials Evaluation		4,037		4,037
327. Donald C. Orlich Idaho State University	The Development of an Information System for Teacher Turnover in Public Schools (Including Uniform Reporting and a Computer Program)		9,233		9,233
347. Dieter H. Paulus Connecticut University	Computer Simulation of Human Ratings of Creativity			9,890	9,890
353. Jack J. Heller Connecticut University	Computer Analysis of the Auditory Characteristics of Musical Performance			72,278	72,278
354. Lena L. Lucietto Chicago University	The Verbal Behavior of Educational Administrators: An Analysis of the Language of School Principals			8,227	8,227
356. Thomas S. Barrows Educational Testing Service	Construction of a Project-Descriptive Evaluative Survey Instrument			52,591	52,591

VI. Specialized Data Development and Analysis—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING 1966	1967	1968	1969	1970	1971	TOTAL
361.	Harry B. Lincoln State University of New York	Development of Computerized Techniques in Music Research with Emphasis on the Thematic Index				10,000			10,000
372.	Albert H. Gee Wisconsin University	The Feasibility and Applicability of Techniques for the Study of Causality in the Social Sciences					$31,832		31,832
381.	Rudolf E. Radocy Pennsylvania State University	Development of a Sequential Test of Nonperforming Musical Behaviors					10,000		10,000
394.	Del H. Schalock Northwest Regional Educational Lab.	A Competency Based, Field Central Systems Approach to Elementary Teacher Education			163,000				163,000
406.	David Wiley Chicago University	Research in the Methodology of Longitudinal Studies							
422.	Abraham I. Katsh New York University	The Construction of a Computer Program for the Classification of Hebrew Word Stems		23,303					23,303
425.	Abraham I. Katsh New York University	The Construction of an Algorithm for Stem Recognition of the Hebrew Language (cont. of Project Number 6-1263)				23,116			23,116
428.	Elinor C. Horne Harvard University	Javanese-English Dictionary		78,401	98,411	45,544			222,356
429.	Project Officer Princeton University	Computer Count Covering Million-Word Representative Sample of *Pai-hua Wen*				50,000	34,994		84,994
455.	Stuart C. Sherman Providence Public Library, R.I.	The Development and Pilot Operation of a System to Reclassify Older Books and Process New Books under the Library of Congress Classification System for a Public Library Currently Employing the Dewey Decimal Classification		7,808					7,808
456.	Maurice F. Tauber Jessica L. Harris Columbia Univ	A Study of the Computer Arrangeability of Complex Terms Occurring in a Major Tool Used in Subject Analysis		7,500					7,500
474.	Ann M. Fox University of Illinois	The Amenability of a Cataloging Process				9,877			9,877

478. Robert Burns, Jr. Colorado State University	Design and Testing of a Computerized Method of Handling Library Periodicals				4,540			4,540
480. Henriette D. Avram Library of Congress	Conversion of Non-Current Catalog Material to Machine-Readable Form					200,000		200,000
509. Ann Schack Joseph Schack American Printing House for the Blind	Computer Translation, Grade Two Braille from Print	24,600	20,340	24,600				69,540
510. Clyde L. Rourey Menninger Foundation	Indirect Assessment of Hearing Sensitivity by Changes in Respiration	26,920	20,901	23,159				70,980
513. Calvin C. Nelson University of Southern California	A Planning Project to Study the Feasibility of Computer Production of Braille Materials for Public School Blind Children		9,600					9,600
516. Ralph R. Leutenegger University of Wisconsin	Automated Training in Auditory Perception and Phonetic Transcription for Beginning Students in Speech Pathology and Audiology	9,526						9,526

VII. Automatic Data Processing

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
4.	Richard M. Fawley Boulder Valley School District	A Computerized Approach to the Individualizing of Instructional Experiences		$26,920					$26,920
5.	Richard Rausch Danbury Board of Education	Regional Educational Services Center Through Unified Effort: Project Rescue	$61,160						61,160
6.	John W. Harrold Board of Cooperative Educational Services of Clinton County	Supplementary Educational Center for Clinton, Essex and Franklin Counties	36,109						36,109
7.	Earle W. Helmer Central School District No. 3	A Dispersed Supplementary Education Services Center for the Genesee Valley Region of Up-State New York	111,718						111,718

VII. Automatic Data Processing—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
11.	Cecil D. Hardesty Department of Education	Planning Grant Application for Supplementary Educational Center	110,705	109,349	$138,509				358,563
14.	Frank L. Hair Joint Board of the Shippensburg Regional Audio-Visual Library and Instructional Materials Center	Survey and Evaluation of Educational Needs and Resources of the Region Comprised of Adams, Cumberland, Perry, Mifflin, Juniata, Huntingdon, Fulton, and Franklin Counties of Pennsylvania	38,343						38,343
19.	Kenneth J. Dunn Union Free School District	Nassau County Planning Proposal	155,053	198,984					354,370
25.	John E. Deady The Wethersfield Board of Education	A Proposal for Planning A Metropolitan Effort Toward Regional Opportunity	90,210						90,210
28.	Roy C. Hill Office of the County Superintendent of Schools of San Bernardino County	Inyo-San Bernardino Counties Planning Grant	236,533						236,533
29.	David L. Morris Timberlane Regional School District	Planning A Pilot Program K-12	31,100						31,100
32.	John D. McLain Jefferson County Board of Education	Survey and Evaluation of Educational Needs and Resources of the Region Comprised of Clarion, Forest, Jefferson, Mercer, and Venango Counties of Pennsylvania	143,234						143,234
40.	Garmon B. Smith Grayson County Public Schools	Educational Resources Cooperative Association Center	380,060	207,297	214,300				801,657
45.	Kenneth Crim Montgomery County Board of Education	Miami Valley Area Curriculum Laboratory and Service Center		154,251	198,296	$143,400			495,947
53.	Byron B. Williams School District #3	Dispersed Supplementary Educational Services Center		351,997	313,329	200,000			864,326
66.	Linton R. Honaker County Superintendent of Schools	Tuscarawas Valley 6-1-77 Educational Service Center	261,190		405,639	259,000			924,829

71.	Theodore R. Smedberg Kern County Superintendent of Schools	California Regional Educational Information Centers	846,151				846,151
83.	Dennis P. Burke Joint Board of Tri-County	Continuing Multicounty Planning		44,920	54,685	$27,000	126,605
85.	Dana Williams Independent School District	Plan to Establish an Educational Service Center Including A Regional Media Center			79,329	85,000	164,329
100.	Harold Enestredt Suburban School Services Joint Board	Total Information for Educational Systems		274,203			274,203
107.	Albert L. Bradfield Kalamazoo Valley Intermediate School District	Regional Enrichment Center		300,000	275,000		575,000
108.	Kenneth J. Dunn U.S.F.D. 6, North Hempstead	Score-Supplemental Centers for Organizing Regional Education			327,270	300,040	250,000	877,310
113.	M. L. Brockette Orange Independent School District	Project Service: A Southeast Texas Educational Services Center			217,768		217,768
115.	Barry B. Thompson Waco Independent School District	Establishment of a Regional Education Center for Central Texas			150,000	150,000	300,000
116.	Ervin Stankevitz Cooperative Educational Service Agency No. 10	A Multi-Disciplinary Approach to Identification, Diagnosis, and Remediation of Educational Disabilities		99,995	41,891		141,886
119.	Dwain M. Estes San Antonio Independent School District	Inter-American Educational Center		494,615	512,600		1,007,215
120.	Carroll W. Biggs Alfred I. DuPont School District	Establishing a Comprehensive Preventive Learning Disabilities and Mental Health Program		75,000	8,488		83,488
124.	Anne Campbell School District of the City of Lincoln	Assistance in Decision Making through Retrieval in Education			96,546	54,064	150,610
128.	Stanley K. Landis Chester County Board of School Directors	Regional Supplementary Services Center			60,694	100,682	62,722	224,098

VII. Automatic Data Processing—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
135.	Joe E. Kirby White County Board of Education	Ninth District Educational Services Center			475,000	619,400			1,094,400
141.	R. L. Talbert Marion County Interim Education District	Compact to Promote and Implement Curricular and Scheduling Innovations in Secondary Schools			120,000	30,000			150,000
158.	Donald Joiner Security Schools District No. 3	Interest Profile Analysis Curriculum			97,740				97,740
171.	Albert F. Hunt, Jr. Bridgewater Public School Department	Project Contemporary Competitiveness			165,439				165,439
179.	Anthony G. L. Brackett Norwalk Board of Education	SPRED—School Progress Reaches Each District			296,044				296,044
180.	Robert L. Poindexter School District of Philadelphia	Comprehensive Program For Innovation			1,047,352				1,047,352
186.	Herbert P. Field Sarasota County Board of Public Instruction	Sarasota's Educational Exploration Development School			313,876				313,876
188.	C. W. Hanchey Calcasieu Parish School System	Planning for Children with Learning Disabilities			44,368				44,368
191.	Heulyn W. Laycock Peso Educational Service Center Region 16	PESO Education Service Center Project			85,000				85,000
205.	Thurston Hill Reorganized District No. R-XI	Child Development Center			201,983				201,983
207.	John H. Fink District Schools—Albany	Statewide Regional Data Processing Planning				150,000	30,000		180,000

221. Edgar R. Garrett New Mexico State University	Speech and Language Therapy under an Automated Stimulus Control System	66,091	62,673	9,232			137,998
241. Paul Wallin Stanford University	Family and School Influence on the Educational Aspirations of Working Class and Middle Class Ninth Grade Boys	47,345	59,093	240			106,678
245. M. D. Wittrock California University	Development of Verbal Skills for Culturally Deprived Children	11,412	25,904	3,415			40,731
264. Frederic Cassidy University of Wisconsin	Completion of Collecting and Preparation for Editing a Dictionary of American Regional English	74,400	74,400	179,500	$81,300	$140,847	550,447
267. William L. Downing Hamline University	Evaluation of and Revision of Open Laboratory Procedures at the College Freshman Level		9,000				9,000
278. James A. Johnson Northern Illinois University	A National Survey of Student Teaching Programs		7,747				7,747
282. Marcia Halvorsen Spelman College	An Analysis and Interpretation of Data on the Social Characteristic of Residents of "Vine City," an Urban Negro Slum	5,995	60				6,055
286. G. C. Turner California State College	An Evaluative Study of Teacher Constructed Test Items for B.S.C.S. Biology		3,537				3,537
291. William Katzenmeyer Association for Educational Data Systems	A Survey and Analysis of Educational Information		55,890				55,890
293. Flanagan S. Stuart Virginia University	The Effects of Courses Employing School Mathematics Study Group Texts of Students First Semester Grades			9,046			9,046
294. Walter Loban California University	An Empirical Study of the Dominating Predictive Features of Spoken Language in a Representative Sample of School Pupils			10,000			10,000
295. Lyle E. Larson Oregon University	The Relative Importance of Family, Peers and School to the Pre-Adolescent and Adolescent		7,878				7,878
298. David D. Woodbridge Florida Institute of Technology	A Method for Evaluating Student Progress in Undergraduate Computer Science by use of Automated Problem Sets			7,780			7,780

VII. Automatic Data Processing—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
300.	Joseph R. Ellis Northern Illinois University	Same Class Organization for Male and Female Junior High School Students—Effects on Achievement, Self-Discipline Concept of Self, Identification Role, and Attitude Toward School			10,000				10,000
301.	Loren D. Crane Western Michigan University	The Measurement of Physiological Arousal Associated with Reading, Writing, Speaking, Listening and the Evaluation of Responses to Pleasant, Adversive and Personal Words			7,380				7,380
302.	John W. Meyer Stanford University	College Effects on Occupational Choice—A Pilot Study			9,998				9,998
308.	Charles J. Anderson Association of Governing Bodies of Universities and Colleges	Census of Governing Boards			10,000				10,000
313.	Albert E. Beaten Beaten Associates, Princeton, N.J.	Computer Models of Student Achievement			4,000				4,000
340.	Project Director Planning Research Corporation	Analysis of 1968 Survey of Compensatory Education				80,579			80,579
350.	Charles F. Johnson Georgia University	Feasibility Study for Developing the Georgia Educational Model for Elementary Teacher Education				102,500			102,500
412.	Shirley L. Menaker Frances F. Fuller R & D Center for Teacher Education	Assessment Instrument Development							
419.	Wayne Otto Wisconsin Research & Development Center for Congitive Learning	The Wisconsin Design for Reading Skill Development							

421. Gordon R. Wood Southern Illinois University	Sub-Regional Speech Variations in Vocabulary, Grammar and Pronunciation	14,492					14,492
423. N. P. Vakar Ohio State University	Study of Spoken Russian (Soviet Usage)—SYNTAX	33,459					33,459
426. John A. Hutchins Naval Institute, Annapolis, Md.	An Investigation of the Elements of Spoken Brazilian Portuguese				43,499		43,499
436. Eugene Oxhandler Syracuse Univ.	A Prototype System for a Computer-Based Statewide Plan Film Library Network—A Model for Operation		81,002				81,002
465. Vincent J. Aceto Case Western Reserve Univ.	An Exploratory Study of the Occupation of Teacher of Librarianship		10,983				10,983
475. Laure M. Sharp Bureau of Social Science Research, Inc.	Overview of the Library Fellowship Program				17,420		17,420
479. Frank L. Schick Wisconsin University	North American Library and Information Science Education Director and Statistics, 1968/70				8,940		8,940
497. Paul A. Weinstein Maryland University	Military Training Transferability Study	77,384	21,932				99,316
499. Harry V. Kincaid	A Preliminary Evaluation of Pre-Technical Programs in Secondary Education	148,751		41,060			189,811
527. Division of Mental Health	Project Assimilation—Assimilating the Systems of Education, Behavior Modification, Computerization and Pre-Vocational Training to Develop Adult Employability					160,000	160,000
529. Don Rucker Los Angeles Co. Supt. of Schools	Design for Reporting Eligibility Count, Program Improvement and Cost-Effectiveness for ESEA, Title I, Projects				13,000		13,000
530. William Joe Turner Consultant Division of Research & Pupil Personnel Services	A Study of the Relationship between Pupil Reading Achievement Gains and Funds Expended for Participants in ESEA Title I projects in Los Angeles County					107,669	107,669

VIII. Information Management and Retrieval

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
1.	Hamilton S. Blum Union Free School District	Book Catalog—J.H.S. Libraries	$17,420						$17,420
12.	Huelyn Laycock Canyon Independent School District	The Texas Cooperative Dissemination Project	12,772						12,772
17.	James H. Beaird Multnomah County Intermediate Education District	Computer-Based Test Development Center	12,742						12,742
18.	Lura E. Crawford Oak Park and River Forest High School	A Cooperative Project Among Teachers, Schools, and Industry for Continued Development of Means to Improve Learning	43,744						43,744
20.	Joseph Strehle Houston Independent School District	Texas Gulf Coast Science Educational Resources Center	25,814						25,814
24.	Louis L. Pickett Scott County Board of Education	Area IX Total Information System	303,027	$240,288	$298,288				841,603
27.	Willis F. Shaw Suburban School Service Joint Board	Coordinated Data Processing Service and Facility	56,225						56,225
33.	Dan M. Gibson Beverly Hills Unified School District	Data Retrieval System	88,134						88,134
36.	Justin W. Wilson, Jr. Dover Special School District	Educational Development Through Technology	158,900						158,900
37.	Mary Joan Egan Burnt-Hills-Balston Lake Central Schools	Environmental Learning Center	59,162	37,556	30,000				126,718
39.	Delbert Repp Board of Cooperative Educational Services	Regional Educational Data Processing and Information System	14,200						14,200

41. Arthur W. Reardon Westmoreland County Board of School Directors	A Plan to Identify the Use and Feasibility of an Information, Storage, and Retrieval System to Selected Schools in Three Counties		121,992			121,992
43. Ross L. Bortner Coatsville Area School District	Innovation in Educational Automation	40,917	168,187	203,502	$149,999	562,605
47. E. W. Skarda Sioux Falls Independent School District #1	Planning a Supplementary Educational Center for Continuing Services with Pilot Projects and Operational Programs for Southeastern South Dakota		112,237	175,936	97,289	385,462
50. Melvin A. Evringham Wapello County Board of Education	Computer-Controlled Media Resource and Data Center for Area XV, Iowa	196,890		266,803		463,693
51. Lura E. Crawford River Forest High School District	Cooperative Project Among Teachers, Schools and Industry for Continued Development of Means to Improve Learning		436,200	556,600		992,800
56. Stanley Wynstra Yonkers City School District	Educational Intellectual Center		204,598	164,857		369,455
58. James F. Redmond Board of Education	Computer Control System and Service Facility to Enhance Quality Education and to Evolve Optimal Distribution Patterns for Large Urban Centers		263,284	186,682		449,966
62. John B. Brinegar Claremont Unified School District	Information Dissemination Concerning Exemplary Programs	13,570	18,316	21,300		53,186
63. Ragene Farris Covina-Valley Unified School District	Provision for Restructure in Independent Study Models (PRISM)		50,891	47,882	39,120	137,893
64. Donald K. Morales Linda Elementary School District	Visual Retrieval Reading Center	19,500				19,500
74. Ernest Youmans Board of Cooperative Educational Services of Chenango County	Curriculum Enrichment Center	169,835	249,199			419,034
76. E. B. Martin Vicksburg Municipal Separate School District	An Educational Resources Center	58,140				58,140

VIII Information Management and Retrieval—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
80.	Ira J. Singer West Hartford Board of Education	Operation of a Dial Select Information Retrieval System for Transmitting Selected Instructional Materials Via a Low Cost Information Transmission System Owned and Operated by the West Harford School System			147,391	112,383			259,774
84.	Joseph Strehle Independent School System	Texas Gulf Coast Science Educational Resources Center		408,334	249,977				658,311
86.	Arthur C. Wiscombe Board of Education of Salt Lake City	Establishing Exemplary Centers for Continuous Progress Education	10,133	225,534	133,165	47,280			416,112
88.	George Hackett Ohio County Board of Education	Region V Psychological Services Center		111,568	109,568		$112,980		334,116
96.	Owen A. Knutzen School District of the City of Omaha	Aims Access to Instructional Materials and Services		227,280					227,280
98.	Dan M. Gibson Beverly Hills Unified School District	Information Retrieval System			99,564	125,960			225,524
105.	William O. Fisher South Cook County Educational Development Cooperation	South Cook County Educational Development Center		400,000	330,803				730,803
118.	Thomas J. Quick Franklin County Board of Education	The Development of a Total Information Center with Auxiliary Services to Independent School Districts		212,993	164,756				377,749
123.	Conrad Eriksen, Jr. City Board of Education	Project to Provide New Motivation for Reading Through Library Services in Overcrowded Elementary Schools	45,137	294,396	299,996				639,529
125.	Owen A. Knutzen School District of the City of Omaha	Aims—Access to Instructional Materials and Services			89,999				89,999
132.	Donald K. Stewart A/M Cons. Independent School District	Creative Application of Technology to Education (CATE)		226,597	203,590				430,187

152.	Fay Harbison Newport-Mesa Unif School District	Space Science Learning Program	72,762	72,000		144,762
157.	Shirley M. Ebetino Schenectady City School District	Regional Instructional Materials Service Center	311,680			311,680
159.	Richard M. Fawley Boulder Valley School District Region No. 2	Cooperative Community Educational Resources Center	50,356			50,356
161.	Paul Seitsinger Charleston Community Unit School District No. 1	Project Inform: A Dissemination Center	195,493			195,493
168.	Robert D. Gilberts Joint School District No. 8	Quick-Time Education Information Retrieval in Wisconsin	46,664			46,664
174.	Noble Wheeler Board of Education for the Intermediate Education District	OTIS (Oregon Total Information System)	250,000	393,369		643,369
175.	Francis J. Ziaukas Westmoreland County Board of School Directors	Mathematics Information System Satellite Center	86,982	82,932		169,914
183.	J. J. Cordell Dougherty County Board of Education	Automated Educational Data System	59,547			59,547
196.	Floyd McLeod Anniston City Board of Education	Anniston Educational Park—Internal Colligation (AEPIC)	158,625			158,625
202.	Jerry L. Evans School District No. 422	Educational Circumferential Information System (E.C.I.S.)	120,000			120,000
203.	William E. Brish Washington County Board of Education	Educational and Cultural Resources Program	37,576			37,576
206.	Ben Wallace Union Free School District No. 10	Designing Learner-Centered Instructional System		60,000	11,125	71,125
208.	Louis Blumberg Union Free School District No. 5 and Levittown Public Library	Information Retrieval and Dissemination Center	45,843	5,000		50,843

VIII Information Management and Retrieval—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
213.	Grace Stipo Port Chester	Regional Information Exchange for the Handicapped				68,740	51,012	$55,000	174,752
214.	Project Director Department of Education—San Diego	Planning Services for Handicapped Children				29,975			29,975
215.	Project Director Cooperative Educational Services Port Chester	Regional Information Exchange for the Handicapped				68,740	51,012		119,752
220.	H. R. Leeman Decatur City Schools	Feasibility Study of Information Retrieval Systems		24,720					24,720
226.	M. M. Miles California State College	A Communications System for Higher Education	67,735	25,511					93,246
230.	Roger W. Shuy Michigan State University	A Study of Social Dialects in Detroit	121,540	3,780					125,320
231.	Walter J. Foley Iowa University	Educational Information Project	435,837	123,889	80,000				639,726
243.	Lawrence F. McNamee East Texas State University	A Bibliography of English and American Literature Dissertations Accepted by American, British and German Universities from 1864–1964	10,513						10,513
263.	Bruce R. Joyce Columbia Univ.	Use of a Data Storage and Retrieval System to Teach Elementary School Children Concepts and Modes of Inquiry in the Social Sciences	52,088						52,088
277.	Cloyd D. Gull Indiana University Foundation	Automation for Preparation of Syllabi and Bibliographies for College Instruction		25,545					25,545
305.	Lawrence F. McNamee East Texas State University	A Bibliography Both in Manuscript Form and on Computer Tapes of All English and American Literature Dissertations Accepted by American, British and German Universities 1865–1968			6,209				6,209

306.	Gerald L. Ericksen Minnesota State Department of Education	A Study for the Coordination of Education and Information and Data Processing from Kindergarten Through College	8,858			8,858
318.	Harry B. Lincoln State University of New York, Albany	Development of Computerized Techniques in Music Research with Emphasis on the Thematic Index	10,000			10,000
335.	Roger K. Summit Lockheed Aircraft Corporation	ERIC On-Line Retrieval System		51,500	28,670	80,170
343.	William S. Verplanck Tennessee University	Operational-Analysis in Application to a Learning Technology for the Schools		43,209		43,209
371.	Grace A. Geibel Rochester University	Curriculum Resource Project for the Indexing and Dissemination of Arts and Humanities Curriculum Guides which Include Music		9,281		9,281
376.	Wesley T. Brandhorst Leasco Systems and Research Corporation	ERIC Processing and Reference Facility			434,859	434,859
382.	Milt Baum Oregon State Board of Education	Pilot State Dissemination Program		150,000		150,000
399.	James Dobbins Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: AUTOCODER Informational Retrieval Project				
400.	M. L. Abbott Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: Project on the 1130 Admissions Information System				
401.	M. L. Abbott Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: FORTRAN Information Retrieval Project				
420.	Joel H. Magisos Center for Vocational and Technical Education	Regional Workshops for Development of State Vocational-Technical Education Information Dissemination Systems				
427.	Menahem Mansoor University of Wisconsin	Politics and Diplomacy in the Arab World 1930–1967: Documentary and Chronological Study, Storage, Analysis, and Retrieval by Use of Computer Programs	49,397	62,543	35,642	147,582

VIII Information Management and Retrieval—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
440.	Charles Vento University of Southern Calif.	A Systems Approach for Automating the Cataloging and Distribution of Educational Motion Pictures		7,548					7,548
441.	Gabriel Ofiesh Catholic Univ. of America	State of the Art of Dial Access Information Retrieval		61,518					61,518
445.	J. A. Kennan EDUCOM—Interuniversity Communications Council	The Educational Information Network			135,000				135,000
452.	Glenn McMurry University of Southern California	Southern California Automated Cataloging Project	112,586						112,586
457.	Donald F. Squires Smithsonian Institution	An Information Storage and Retrieval System for Biological and Geological Data		292,927		259,000			551,927
458.	Allen B. Veaner Stanford Univ.	Bibliographic Automation of Large Library Operations Using a Time-Sharing System (Project Ballots)		417,490		499,307	251,400		1,168,197
459.	M. E. Maron Univ. of Calif., Berkeley	An Information Processing Laboratory for Education and Research in Library Science		141,763		200,000			341,763
460.	Robert S. Taylor Hampshire College	Development of the Concept of an Experimenting and Extended College Library		64,408		49,889			114,297
461.	Edward F. Turner, Jr. Washington and Lee University	Study of the Implications of Modern Technology in Small College Libraries		75,000					75,000
462.	S. Lubetzky UCLA	Descriptive Cataloging, Development of Principles of Cataloging, Phase I		56,301					56,301
463.	Paul J. Fasana Richard H. Logsdon Columbia University	A Computer-Based System for Reserve Activities in a University Library		90,000					90,000
464.	Ben Ami Lipetz Yale University	Study of User Requirements in Identifying Desired Works in a Large Library		109,219					109,219
465.	Vincent J. Aceto Case Western Reserve Univ.	An Exploratory Study of the Occupation of Teacher of Librarianship		10,983					10,983

466.	Lavahn Overmyer Case Western Reserve Univ.	Library Automation—A Critical Review	14,991				14,991
467.	M. E. Maron University of Calif., Berkeley	A Study of the Organization and Search of Bibliographic Holdings Records in On-line Computer Systems	179,719	309,873			489,592
468.	H. L. Resnikoff J. L. Dolby R and D Consultants Co., Los Altos, California	An Evaluation of the Utility and Cost of Computerized Library Catalogs	25,077				25,077
469.	Heinz Von Foerster Robert T. Chien Illinois Univ.	Acquisition of Knowledge in Relation to Information, Storage and Retrieval	250,000		181,000		431,000
470.	Pauline Atherton Syracuse Univ.	Development of a Computer-Based Laboratory Program for Library Science Students Using L.C./Marc Tapes		104,480			104,480
471.	James L. Dolby R and D Consultants Company	A Study of the Cost of Maintaining and Updating Library Card Catalogs		14,980			14,980
472.	James L. Dolby R and D Consultants Company	A Computer-Aided Study of Access Management and Collection Management in Libraries			135,000		135,000
477.	Samuel Goldstein New England Board of Higher Education	Development of a Machine-Form Union Catalog for the New England Library Information Network			97,180		97,180
480.	Henriette D. Avram Library of Congress	Conversion of Non-Current Catalog Material to Machine-Readable Form				200,000	200,000
481.	Edwin S. Gleaves George Peabody College for Teachers	An Investigation of More Effective Means of Organization and Utilization of the Nashville Union Catalog				8,324	8,324
482.	Mildred Frary Los Angeles Unified School District	Study and Development of Automated Instructional Materials-Handling Program				171,402	171,402
484.	Barbara Markuson System Development Corp.	Conduct an Analysis of Automated Federal Library Programs to the Purpose of Establishing Feasibility Criteria and as a Basis for Development of a Generalized Automated Systems Design				119,800	119,800
485.	Frederick G. Kilgour Ohio College Library Center	Development of a Computerized Regional Shared-Cataloging System				90,135	90,135

VIII Information Management and Retrieval—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
487.	C. Edwin Dowlin New Mexico State Library	Printing of Book of Southwestern Union List of Serials				11,500			11,500
488.	State Librarian Oklahoma Dept. of Libraries	MARC-Oklahoma		7,075	41,741	42,061			90,877
504.	David V. Tiedeman and others Harvard University	An Information System for Vocational Decisions under Section 4(c) of the Vocational Education Act of 1963	219,949	415,000	622,989	544,827			1,802,765
506.	John C. Flanagan American Institute for Research in Behavioral Sciences	A Computer-Based Vocational Guidance System			90,000	122,666			212,666
507.	Donald P. Estavan Harry F. Silberman System Development Corporation	Implementation of Vocational Counseling System			96,867				96,867
511.	William G. Wolfe Texas University College of Education	Special Education Instructional Materials Center	138,248	64,796	145,574				348,618
512.	Lou Alonso Michigan State University	An Instructional Materials Center for Children with Visual Handicaps	178,495	18,751	191,294				388,540
517.	John F. Vinsonhaler Michigan State University	Improving the Dissemination of Instructional Materials for Handicapped Children and Youth			140,870				140,870
518.	Frederick Weintraub The Council for Exceptional Children	Development and Evaluation of State-Federal Computerized Legislative Information Clearinghouse for Handicapped Children and Youth				217,269			217,269
527.	Division of Mental Health	Project Assimilation—Assimilating the Systems of Education, Behavior Modification, Computerization and Pre-Vocational Training to Develop Adult Employability					160,000		160,000

IX. Administration and Organization

9. E. Dunmire Geauga County Board of Education	Geauga County Area Educational and Cultural Center	$30,519			$30,519
13. Lesley H. Browder South Kingstown School Department	The South Kingstown School Development Program	21,276			21,276
15. Charles E. Brewin, Jr. Bucks County Board of School Directors	Supplementary Educational Center for Bucks County	25,081			25,081
23. C. Herbert Larson, Jr. Centre County Board of Education	Survey and Evaluation of Educational Needs and Resources of the Region Comprised of Centre, Clearfield, Clinton, and Lycoming Counties of Pennsylvania	66,864			66,864
26. M. H. Ojala Independent School District No. 274	Improvement of Educational Experiences for All Students Through the Development of a Modular Curriculum	43,728			43,728
30. Richard Bigelow Board of Education	Regional Instructional Computer Center	32,436			32,436
31. Orien C. Shockley Board of Education of the City of Santa Fe	Cooperative Project to Provide Supplemental Services to a Group of Elementary and Secondary Schools of New Mexico	282,752	$153,808	$480,393	916,953
35. Ray L. Talbert Woodburn Public Schools	Compact to Promote and Implement Curricular and Scheduling Innovations in Secondary Schools	36,430			36,430
40. Garmon B. Smith Grayson County Public Schools	Educational Resources Cooperative Association Center	380,060	207,297	214,300	801,657
42. K. L. Halvorson Independent School District #47	Central Minnesota Educational Research and Development Council	48,825			48,825
44. William C. Jones Board of Education for the Intermediate Education District	Oregon Total Information System (OTIS)	19,852	234,475	91,097	345,424
54. Robert R. Spelts Douglas Independent School District #3	Planning a Supplementary Educational Center and for Continuing Services with Pilot Projects and Operational Programs for Western South Dakota	263,944	44,898	214,953	523,795

IX. Administration and Organization—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
65.	J. O. Lancaster Concordia Parish School Board	Educational Data Processing	22,049						22,049
67.	Julius H. Mueller Masconomet Regional District School Committee	Regional Research and Development Center —Reporting Student Progress in Terms of Modular Progress	16,693						16,693
69.	Ralph C. Morris Polk County Board of Education	Area XI Regional Project "Access"	199,990		180,500				380,490
73.	Leonard Cronk Board of Education of the City of Orange	Resource, Production and Service Center	49,285						49,285
76.	E. B. Martin Vicksburg Municipal Separate School District	An Educational Resources Center	58,140						58,140
77.	Roy Erdman Consolidated High School District No. 230	Regional Educational Development Organization (REDO)	122,186						122,186
81.	Harold E. LeFeure Intermediate School District	Integrated Educational Information System		299,237	303,855				603,092
82.	James A. Huddy, Jr. Chester County Board of School Directors	Countywide Proposal for Special Services for Children and Youth with Emotional and/or Social Problems		138,912	127,405	$130,860	$27,020		424,197
89.	Otis Mallory Desert Center Unified School District	Operational Learning		80,671	59,000				139,671
91.	John Arcangelo Northeastern Instructional Materials Center	Planning Grant to Establish an Educational Media Center		18,227					18,227
93.	J. O. Lancaster Concordia Parish School Board	Educational Automation		97,880	79,029				176,909

101.	J. D. Prince McComb Municipal Separate School District	Using Data Processing to Evaluate and Improve Classroom Instruction in Selected Mississippi School District	166,920		6,847		173,767
104.	John W. Reng Fremont County Vocational High School	Automation for Isolated Schools		10,585			10,585
109.	John L. Wilson Hamilton County Board of Education	Total Application of Data Processing Techniques to Pupil Transportation		145,772	262,611		408,383
112.	Wayne A. Whyte Lorain County Board of Education	Lorain County Supplementary Educational Center		53,664			53,664
114.	James Forester Northeast Independent School District	Proposal for the Planning of a Comprehensive Pupil Personnel Services Program			101,328	103,893	115,924	321,145
118.	Thomas J. Quick Franklin County Board of Education	The Development of a Total Information Center with Auxiliary Services to Independent School Districts		212,993	164,756		377,749
124.	Anne Campbell School District of the City of Lincoln	Assistance in Decision Making through Retrieval in Education			96,546	54,064	150,610
126.	R. N. Tydings Hobbs Municipal Schools	Lea County Data Processing Center		71,363		32,250	103,613
129.	J. G. McCracken Region IV—South Carolina	Planning for Innovation in South Carolina		121,868		69,597	191,520
131.	T. S. Pickens Edinburg Consolidated Independent School District	Educational Planning, Region I, to Establish Service and Regional Media Center		67,524	95,305		162,829
133.	Joseph M. Carroll The District of Columbia Public Schools	Flexible Educational Park Planning Formats				49,235	49,235
134.	Joe Hall Dade County Board of Public Instruction	Improved Educational Services and Practices Through Utilization of Electronic Records	74,304	551,444			625,748
138.	Harry O. Leader West Lafayette Community-School Corporation	Wabash Valley Education Center		685,313	585,000	400,000	1,670,313

IX. Administration and Organization—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
142.	Francis J. Pilecki Centre County Board of Education	Intense-Interrelated Thrusts to Enrich Schools Effectiveness		365,236	371,436	198,630	181,370		1,116,672
151.	Jay K. Donaldson Carbon County School District	Program to Provide Psychological and Social Work Services to Rural School Districts			95,977	74,419			170,396
154.	Dustin W. Wilson Dover Special School District	(EDTECH) Educational Development Through Technology			224,674				224,674
155.	George A. MacArthur Foxborough Public Schools	Project SPOKE			195,101	175,746	140,994		511,841
160.	Joseph V. Medeiros New London Public Schools	General Advancement Program (GAP)			37,378				37,378
172.	William H. Ohrenberger School Committee	Innovative Implementation of Generalized Academic Simulation Program (GASP)			35,358				35,358
192.	H. W. Elrod Houston Independent School District	Central Cities Program			500,000	386,738			886,738
195.	John W. Reng Freemont County Vocational High School	Automation for Isolated Schools			7,743				7,743
198.	Theodore H. Martland Board of Education	Greater Regional Opportunities for Waterbury			50,315				50,315
204.	W. S. Carter Desoto County Board of Education	Exploration and Training				42,371			42,371
205.	Thurston Hill Reorganized District No. R-XI	Child Development Center			201,983				201,983
210.	T. S. Hancock Educational Service Center	Region IV Education Service Center			85,000				85,000

211.	Arnold R. Burton Roanoke County School Board	Curriculum Improvement Through Modular Scheduling			112,176		112,176
215.	Project Director Cooperative Educational Services Port Chester	Regional Information Exchange for the Handicapped				68,740 51,012	119,752
216.	Project Director Hamilton County Board of Education	Integrated Management System for Pupil Transportation				159,500	159,500
217.	Project Director Oak Ridge Schools	Inservice Education Models for Teachers K-12				45,000 264,173	309,173
240.	Allen Kent Pittsburgh Univ.	Study of a New Approach to Class Scheduling Problems	7,620				7,620
244.	Gordon Anderson Texas University	The Development of a Student Accounting System	8,958				8,958
268.	Leonard M. Chaffee Robert W. Zeller State Univ. of N.Y., Albany	Cost Analysis of Automated Scheduling	6,800				6,800
270.	Robert C. Meier Washington Univ.	Development of a Computer Program for Use in the Analysis of Future Land, Building, and Staff Requirements in Institutions of Higher Learning		7,586			7,586
271.	F. R. Burnham Iowa State Dept. of Public Instruction	A Demonstration Center to Implement and Test the School Property Accounting System Presented in Handbook III, U.S. Dept. of HEW		50,247			50,247
273.	Allen H. Barton Columbia Univ.	Application of Electronic Computer Techniques to Racial Integration in School Systems		59,086			59,086
281.	Morris J. Daniels San Diego State College	A Study of the Effects of Computers on the Occupational Adjustment of a Professional Group		9,000			9,000
292.	Charles J. Armstrong Dayton University	Ten Mid-West Institutions Grouped Cooperatively to Develop a Research Capability		50,000	42,500		92,500
304.	June R. Chapin Notre Dame College Belmont, Calif.	The Financial Support, Usage, Decision Making and Planning of Computer Centers in Higher Education			7,200		7,200

IX. Administration and Organization—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
306.	Gerald L. Ericksen Minnesota State Department of Education	A Study for the Coordination of Education and Information and Data Processing from Kindergarten Through College			8,858				8,858
307.	Tony A. Ross Roscoe A. Boyer Mississippi Univ.	Development of a Special Computer Program to Design School Bus Routes			8,598				8,598
317.	Roger L. Sisson Martin F. Stankard Pennsylvania Univ.	Optimal Use of a Computer-Based Instruction System in an Existing Urban School District			9,458				9,458
324.	Donald Gerwin Wisconsin University	A Proposal for Research on the Determination of Teacher Salary Increases			8,053				8,053
327.	Donald C. Orlich Idaho State University	The Development of an Information System for Teacher Turnover in Public Schools (Including Uniform Reporting and a Computer Program)			9,233				9,233
346.	John A. Schmitt Boston College	Prediction of Public School Enrollments Using Computer Simulation Techniques				7,220			7,220
349.	James M. Cooper Massachusetts University	A Feasibility Study for Phase II of the Elementary Teacher Education Project				152,464			152,464
359.	Gilbert Sax Washington University	Pre-Decisional Information Search in Teacher Selection				9,442			9,442
363.	Warren H. Thomas State University of New York	Bus Routing in a Multi-School System				9,917			9,917
366.	James R. Gove Valley View School District	Feasibility Study of Full Year Public School Operation by Detailed Analyses of Required Scheduling Plans and Accompanying Consequences				10,000			10,000
368.	Gerald R. Boardman Wisconsin University	A Computer-Based Feedback Model for Simulation Exercises				9,863			9,863
375.	George W. Zepko Stevens Institute of Technology	Specifications for a Low-Cost Computing System Suitable for the High School Environment					9,883		9,883

378.	Ernest G. Anderson, Jr Massachusetts University	A Validation Study of a Curriculum Simulation Planning Model for Education					7,653	7,653
387.	Everett Hopkins Regional Educational Lab for the Carolinas and Virginia	Regional Educational Laboratory for the Carolinas and Virginia	190,209	349,472	697,878	820,000	503,747	2,561,306
389.	Richard Schutz Southwest Regional Educational Laboratory	Southwest Regional Laboratory for Educational Research and Development	894,725	1,570,000	2,235,000	2,486,726	3,023,805	10,210,256
391.	Lawrence Fish Northwest Regional Educational Laboratory	Northwest Regional Educational Laboratory	516,610	1,350,706	1,565,525	1,863,473	1,841,424	7,137,738
392.	Wade M. Robinson Central Midwestern Regional Educational Laboratory	Central Midwestern Regional Educational Laboratory	695,082	805,640	1,370,143	1,746,125	2,221,013	6,838,003
393.	B. Carmichael Appalachia Educational Lab.	Appalachia Educational Laboratory	378,600	1,200,000	993,795	915,851	1,125,855	4,614,101
397.	Bard F. White Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: Project on Data Management Systems Development Handbook						
398.	Thomas Briley Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational System: Statistical Interface System Project						
399.	James Dobbins Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: AUTOCODER Informational Retrieval Project						
400.	M. L. Abbott Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: Project on the 1130 Admissions Information System						
401.	M. L. Abbott Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: FORTRAN Information Retrieval Project						

IX. Administration and Organization

Project Reference Number	Investigator/ Institution	Project Title	FUNDING 1966	1967	1968	1969	1970	1971	TOTAL
402.	Bard F. White Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: University Admissions Information System (UAIS) Project							
403.	Bard F. White Regional Education Laboratory for the Carolinas and Virginia	Administrative and Organizational Systems: Financial Aid Informational System (FAIS) Project							
443.	John Bilinski General Learning Corp.	A Cost Study of Educational Media Systems and Their Equipment Components			82,381				82,381
483.	John A. Albertini Information Dynamics Corp.	Study of the Development and Present Status of Automated Techniques and Procedures in Federal Libraries & Documentation Centers			74,044				74,044
492.	Dwight W. Allen Stanford University	Flexibility for Vocational Education Through Computer Scheduling		353,524	289,955				643,479

X. Network and Consortia

6.	John W. Harrold Board of Cooperative Educational Services of Clinton County	Supplementary Educational Center for Clinton, Essex and Franklin Counties	$36,109						$36,109
7.	Earle W. Helmer Central School District No. 3	A Dispersed Supplementary Education Services Center for the Genesee Valley Region of Up-State New York	111,718						111,718
10.	R. W. Lambuth McComb Municipal Separate School District	Student Programing and Counseling Assistance by Data Processing for Southwest Mississippi	113,766	$179,368					293,134
12.	Huelyn Laycock Canyon Independent School District	The Texas Cooperative Dissemination Project	12,772						12,772

14. Frank L. Hair Joint Board of the Shippensburg Regional Audio-Visual Library and Instructional Materials Center	Survey and Evaluation of Educational Needs and Resources of the Region Comprised of Adams, Cumberland, Perry, Mifflin, Juniata, Huntingdon, Fulton, and Franklin Counties of Pennsylvania	38,343					38,343
19. Kenneth J. Dunn Union Free School District	Nassau County Planning Proposal	155,053	$198,984				354,037
24. Louis L. Pickett Scott County Board of Education	Area IX Total Information System	303,027	240,288	$298,288			841,603
25. John E. Deady The Wethersfield Board of Education	A Proposal for Planning A Metropolitan Effort Toward Regional Opportunity	90,210					90,210
50. Melvin A. Evringham Wapello County Board of Education	Computer-Controlled Media Resource and Data Center for Area XV, Iowa	196,890		266,803			463,693
51. Lura E. Crawford River Forest High School District	Cooperative Project Among Teachers, Schools and Industry for Continued Development of Means to Improve Learning		436,200	556,600			992,800
54. Robert R. Spelts Douglas Independent School District #3	Planning a Supplementary Educational Center and for Continuing Services with Pilot Projects and Operational Programs for Western South Dakota	263,944	44,898	214,953			523,795
63. Ragene Farris Covina-Valley Unified School District	Provision for Restructure in Independent Study Models (PRISM)		50,891	47,882	$39,120		137,893
66. Linton R. Honaker County Superintendent of Schools	Tuscarawas Valley 6-1-77 Educational Service Center	261,190		405,639	259,000		924,829
67. Julius H. Mueller Masconomet Regional District School Committee	Regional Research and Development Center-Reporting Student Progress in Terms of Modular Progress	16,693					16,693
79. David Wyllie Board of Education	Regional Instructional Computer Center		160,026	222,050			382,076
83. Dennis P. Burke Joint Board of Tri-County	Continuing Multicounty Planning		44,920	54,685		$27,000	126,605

X. Network and Consortia—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
84.	Joseph Strehle Independent School System	Texas Gulf Coast Science Educational Resources Center		408,334	249,977				658,311
85.	Dana Williams Independent School District	Plan to Establish an Educational Service Center Including a Regional Media Center			79,329	85,000			164,329
91.	John Arcangelo Northeastern Instructional Materials Center	Planning Grant to Establish an Educational Media Center		18,227					18,227
93.	J. O. Lancaster Concordia Parish School Board	Educational Automation		97,880	79,029				176,909
105.	William O. Fisher South Cook County Educational Development Cooperative	South Cook County Educational Development Center		400,000	330,803				730,803
107.	Albert L. Bradfield Kalamazoo Valley Intermediate School District	Regional Enrichment Center		300,000	275,000				575,000
113.	M. L. Brockette Orange Independent School District	Project Service: A Southeast Texas Educational Services Center			217,768				217,768
118.	Thomas J. Quick Franklin County Board of Education	The Development of a Total Information Center with Auxiliary Services to Independent School Districts		212,993	164,756				377,749
124.	Anne Campbell School District of the City of Lincoln	Assistance in Decision Making Through Retrieval in Education			96,546	54,064			150,610
131.	T. S. Pickens Edinburg Consolidated Independent School District	Educational Planning, Region I, to Establish Service and Regional Media Center		67,524	95,305				162,829

132. Donald K. Stewart A/M Cons. Independent School District	Creative Application of Technology to Education (CATE)		226,597	203,590			430,187
134. Joe Hall Dade County Board of Public Instruction	Improved Educational Services and Practices Through Utilization of Electronic Records	68,304	551,444				625,748
137. Gail Richardson Community Unit School District	Eastern Illinois Development and Service Unit			500,788	302,380	62,621	865,789
141. R. L. Talbert Marion County Interim Education District	Compact to Promote and Implement Curricular and Scheduling Innovations in Secondary Schools			120,000	30,000		150,000
148. Dwain M. Estes Independent School District	Educational Planning, Region XX, to Establish Service and Regional Media Centers			62,691	92,372		155,063
149. A. E. Wells Abilene Independent School District	Educational Planning Region 14 (to Establish Educational Service and Regional Media Centers)			71,329	85,000		156,329
150. Barry B. Thompson Waco Independent School District	Educational Planning for Region XII, to Establish Educational Service Regional and Media Centers			122,945	85,000		207,945
154. Dustin W. Wilson, Jr. Dover Special School District	(EDTECH) Educational Development Through Technology			224,674			224,674
157. Shirley M. Ebetino Schenectady City School District	Regional Instructional Materials Service Center			311,680			311,680
174. Noble Wheeler Board of Education for the Intermediate Education District	OTIS (Oregon Total Information System)			250,000	393,369		643,369
175. Francis J. Ziaukas Westmoreland County Board of School Directors	Mathematics Information System Satellite Center			86,982	82,932		169,914
179. Anthony G. L. Brackett Norwalk Board of Education	SPRED—School Progress Reaches Each District			296,044			296,044

X. Network and Consortia—Cont.

Project Reference Number	Investigator/ Institution	Project Title	FUNDING						
			1966	1967	1968	1969	1970	1971	TOTAL
197.	Stuart S. Philips Oakland Unified School District	Urban Studies Center—A Prototype Program in Urban Education			251,000	121,392			372,392
215.	Project Director Cooperative Educational Services Port Chester	Regional Information Exchange for the Handicapped				68,740	51,012		119,752
218.	J. H. Wanamaker Board of Education of the Youngstown City School District	Student Computer Oriented Program —Education (SCOPE)		25,000					25,000
219.	Jerry L. Evans School District No. 422	Educational Information System Pilot Project		25,000					25,000
285.	D. G. Lewis General Learning Corporation	A Feasibility Study of a Central Computer Facility for an Educational System		129,050					129,050
382.	Milt Baum Oregon State Board of Education	Pilot State Dissemination Program					150,000		150,000
435.	Carl E. Thornblad Research Council of Great Cities Program for School Improvement	Great Cities Research Council Educational Communications Project		107,796	54,799				162,595
437.	Warren Boecklen Cooperating Schools A-V Corp. of St. Louis County	A Computer Study of the Allocation of Channels and Placement of Transmitters for 2500 Megacycle Fixed-Station Service in a Metropolitan Area Containing Many Eligible Applicants for Licensing		31,989					31,989
445.	T. A. Kennan EDUCOM—Interuniversity Communications Council	The Educational Information Network			135,000				135,000

450. Eugene Oxhandler Syracuse University	The Computer Simulation of a Statewide Film Library Network, Feasibility Study	57,421				57,421
476. Maryan E. Reynolds Washington State Library	Construction of a Decision-Making Model for Library Network Implementation in Washington State			68,780		68,780
486. State Librarian State Library	State Library Network		43,487	44,128	61,256	148,871
489. State Librarian State Library	Statewide Library Network			42,526		42,526

List of Project Abstracts by Legislation

The project abstracts are classified by the legislation which provided support for the project. Each abstract in the book is preceded by a number which will identify its location on the following pages, in accordance with the following summary.

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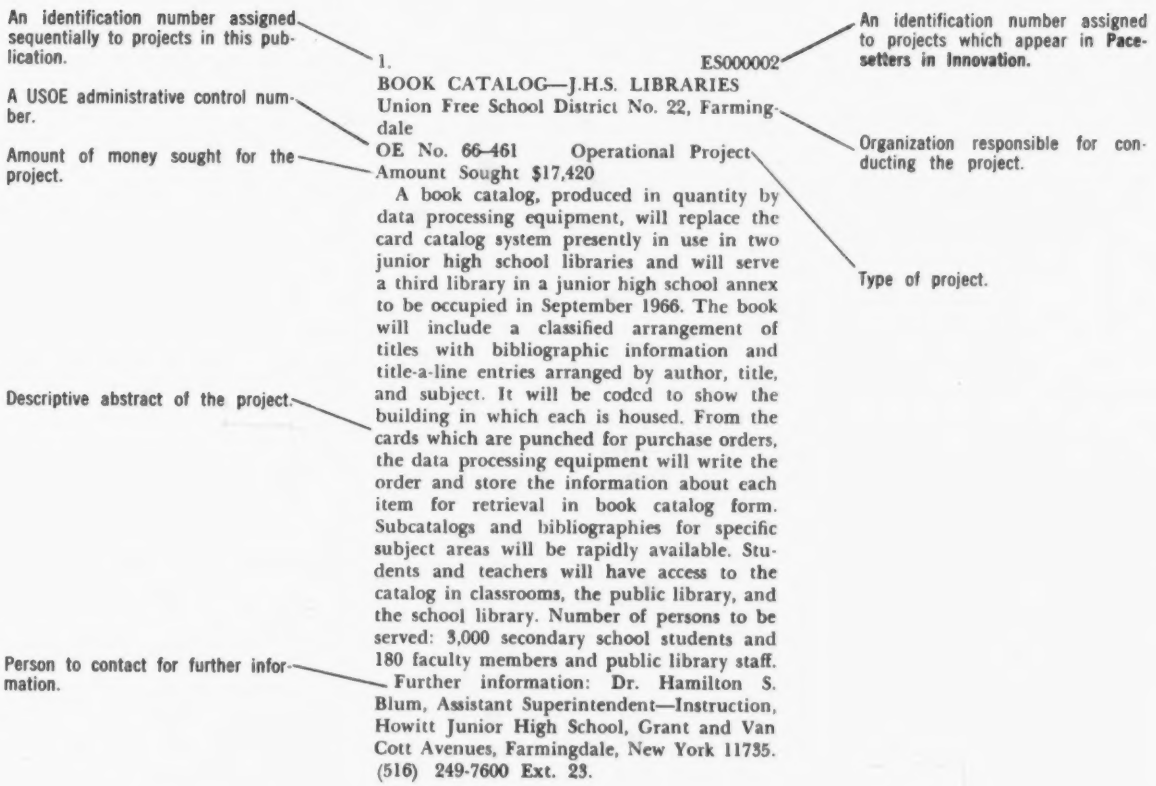
DESCRIPTION OF SAMPLE ENTRY

FOR

ELEMENTARY AND SECONDARY EDUCATION ACT—TITLE III


An identification number assigned sequentially to projects in this publication.
An identification number assigned to projects which appear in Pacesetters in Innovation.
A USOE administrative control number.
Organization responsible for conducting the project.
Amount of money sought for the project.
Type of project.
Descriptive abstract of the project.
Person to contact for further information.

1. ES000002

BOOK CATALOG—J.H.S. LIBRARIES

Union Free School District No. 22, Farmingdale

OE No. 66-461 Operational Project

Amount Sought $17,420

A book catalog, produced in quantity by data processing equipment, will replace the card catalog system presently in use in two junior high school libraries and will serve a third library in a junior high school annex to be occupied in September 1966. The book will include a classified arrangement of titles with bibliographic information and title-a-line entries arranged by author, title, and subject. It will be coded to show the building in which each is housed. From the cards which are punched for purchase orders, the data processing equipment will write the order and store the information about each item for retrieval in book catalog form. Subcatalogs and bibliographies for specific subject areas will be rapidly available. Students and teachers will have access to the catalog in classrooms, the public library, and the school library. Number of persons to be served: 3,000 secondary school students and 180 faculty members and public library staff.

Further information: Dr. Hamilton S. Blum, Assistant Superintendent—Instruction, Howitt Junior High School, Grant and Van Cott Avenues, Farmingdale, New York 11735. (516) 249-7600 Ext. 23.

Elementary and Secondary Education Act-Title III

1. ES000002
BOOK CATALOG—J.H.S. LIBRARIES
Union Free School District No. 22, Farmingdale
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Further information: Dr. Hamilton S. Blum, Assistant Superintendent—Instruction, Howitt Junior High School, Grant and Van Cott Avenues, Farmingdale, New York 11735. (516) 249-7600 Ext. 23

2. ES000021
A COMPUTERIZED APPROACH TO THE INDIVIDUALIZING OF INSTRUCTIONAL EXPERIENCES
Boulder Valley School District No. Re-2, Boulder
OE No. 66–481 Planning Project
Amount sought $46,035

Part I. Based on information about individual characteristics of the students, the use of computer facilities is to be planned to help teachers design more effective instructional experiences for three broad groups of students—the academically able, the middle range, and potential dropouts—in Kindergarten through Grade 12. The kinds of input data such as educational objectives, student characteristics, and instructional designs are to be determined. Inservice workshops are to be set up for teachers, and a complete design for evaluating the program is to be developed. Estimated number of persons to be served: 1,300 students.

Further information: Richard M. Fawley, Director; Curriculum Research and Statistical Analysis; P.O. Box 186, Boulder, Colorado. (303) 442-6931 Ext. 45.

3. ES000023
SHORELINE INSTRUCTIONAL MULTI-MEDIA CENTER
Board of Education of Old Saybrook, Old Saybrook
OE No. 66–136 Planning Project
Amount sought $78,566

An instructional materials and cultural center is to be planned to provide such services as educational television, computer-assisted instruction, and microfilming. Planning is to include: cooperative efforts to autonomous school systems; preparation of small rural suburban communities for the influx of relocated culturally deprived groups; development of an effective survey tool for schools of 3,000 or fewer pupils; cooperation between public and nonpublic schools; evaluation and use of modern technical aids by the schools of small communities; opportunities for students to master technical office and production machines not available in the schools; development of the multi-media center to serve a large area; and use of educational research results in classroom practice. Number of persons to be served: 84,700.

Further information: Lawrence Reney, Board of Education of Old Saybrook, 12–24 Sheffield Street, Old Saybrook, Connecticut 06475. (203) 388-3409

4. ES000027
A COMPUTERIZED APPROACH TO THE INDIVIDUALIZING OF INSTRUCTIONAL EXPERIENCES
Boulder Valley School District No. Re-2, Boulder
OE No. 66–399 Planning Project
Amount sought $26,920, fiscal year '67

Part II. A continuation of Part I above, the program is to consist of completion of preplanning,

collection of input data on the three groups of students, coding of information for punch cards, preparation of a program for computer analysis, continuation of teacher workshops, consultation with specialists, a trial run of the system, and completion of planning in order to begin operation in the fall of 1967.

Further information: Richard M. Fawley, Director; Curriculum Research and Statistical Analysis; P.O. Box 186, Boulder, Colorado. (303) 442-6931 Ext. 45

5. ES000029

REGIONAL EDUCATIONAL SERVICES CENTER THROUGH UNIFIED EFFORT: PROJECT RESCUE

Danbury Board of Education, Danbury
OE No. 66–146 Planning Project
Amount sought $61,160

The center is to be planned in four sections: 1) Evaluation and Remediation, to provide supplementary psychological, social, health, and guidance and counseling services; in-school, out-of-school and after-school remediation programs; and programs for the educationally and culturally disadvantaged. 2) Research and Demonstration, to assist teachers in developing new ideas to disseminate research findings and to demonstrate new methods and technology. 3) Community and Cultural Development, to coordinate the utilization of all community and cultural resources. 4) Educational Media and Materials Resources, to include television studios, a data processing center, mobile units, and a multi-media audiovisual system. Number of persons to be served: 42,618 children.

Further information: Richard Rausch, Associate Superintendent, Danbury Board of Education, Mill Ridge Administration Building, Mill Ridge, Danbury, Connecticut 06811. (203) 748-5685

6. ES000091

SUPPLEMENTARY EDUCATIONAL CENTER FOR CLINTON, ESSEX AND FRANKLIN COUNTIES

Board of Cooperative Educational Services of Clinton County, Ellenberg Depot
OE No. 66–190 Planning Project
Amount sought $36,109

A 3-county educational center is to be planned for pupil personnel services such as psychologists, social workers, counselors, remedial specialists, medical and health personnel, and psychiatric consultants. It is also to serve as a communications center for audiovisual materials, radio and television, programed instruction, microfilming, and data processing; a center of innovation for the initiation of new programs, such as prenursery, preschool parent education, special classes, after-school programs, vocational school programs, summer school, outdoor recreation, and units for art, music, theater, science, language and library; a center for inservice education to initiate and coordinate programs for teachers working with special classes or exceptional children; and a center for enrichment in education to provide special educational and cultural programs and services which would supplement regular school programs. There are 152,764 residents in the area to be served.

Further information: John W. Harrold, Executive Officer, Ellenburg Depot, New York 12935. (518) 561-2251 or 594-7627

7. ES000092

A DISPERSED SUPPLEMENTARY EDUCATION SERVICES CENTER FOR THE GENESEE VALLEY REGION OF UP-STATE NEW YORK

Central School District No. 3, Town of Irondequoit, Rochester
OE No. 66–180 Planning Project
Amount sought $111,718

To be planned is the establishment in the Genesee Valley Region, which is comprised of Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates Counties, of a center consisting of a Production and Control Unit near Rochester that would be in communication by microwave and cable with other units in the nine counties. Each subunit would be equipped to receive, reproduce, and distribute video, sound, and facsimile transmissions from the central unit to any children or teachers in its area. Services, ideas and instructional materials and equipment for teachers and students will be created and supplied. Teachers in service will be trained. The Center will work closely with the Rochester Area Educational Television Association, bring the educational programs of the Rochester Museum of Arts and Sciences to students and adults, and extend the activities of the Rochester Art Gallery. Personnel and equipment for data processing will be acquired. Assistance will be given in making existing library resources available. The number of persons to be served is estimated at 257,238 students and teachers.

Further information: Earle W. Helmer, 370 Cooper Road, Rochester, New York 14617. (716) FI 2-5500

8. ES000093

A PROPOSAL FOR A CONTINUOUS PROGRAM OF INDEPENDENT STUDY FROM ELEMENTARY THROUGH SECONDARY EDUCATION

Niskayuna Central School District No. 1, Schenectady

OE No. 66–172 Planning Project

Amount sought $22,813

Niskayuna School District wants to revise its libraries so as to include a variety of auto-instructional devices such as self-contained single concept film projectors, coupled slide projectors and tape recorders, reading pacers, teaching typewriters, micro storage equipment, and an electronic information retrieval system. A highly qualified person is to be employed to coordinate all phases in the planning and implementation of this program and advice is to be sought from consultants. About 3,100 students will be served.

Further information: Joseph H. Oakey, Principal, Niskayuna High School, Schenectady, New York 12309. (518) 393-6651

9. ES000099

GEAUGA COUNTY AREA EDUCATIONAL AND CULTURAL CENTER

Geauga County Board of Education, Chardon

OE No. 66–18 Planning Project

Amount sought $30,519

Sixteen service areas will be studied independently by planning committees working within the framework of four divisions: Instructional Resources and Materials, Instructional Program Development, Pupil Personnel Services, and Centralized Administrative Facilities and Functions. The service areas include an instructional materials center, visiting specialists in the fine and performing arts, specialized library services, specialists in content area, a nursery school program, adult education, special education, vocational education, remedial reading, physical fitness and health, psychological, guidance, and sociological personnel; educational research and computer services, central purchasing, transportation coordination, food service, and school plant planning. Needs are to be assessed and educational programs and cultural services planned to meet them. Number of persons to be served: 14,000 public school students, 1,722 nonpublic school students, and 39,278 adults.

Further information: Dr. E. Dunmire, Assistant Superintendent, Geauga County Schools, Courthouse, Chardon, Ohio. (216) 285-2222 Ext. 48 or 49

10. ES000109

STUDENT PROGRAMING AND COUNSELING ASSISTANCE BY DATA PROCESSING FOR SOUTHWEST MISSISSIPPI

McComb Municipal Separate School District, McComb

OE No. 66–173 Operational Project

Amount sought $293,134

A center will be established to process data by computer to aid in the guidance, instruction, and curriculum planning of students in five counties. The effectiveness of programed instruction in algebra and of different ways to teach reading will be evaluated. Dropping out of school and changes in curriculum needed to prevent it will be studied. The number of children to be served is estimated at about 24,000.

Further information: R. W. Lambuth, Superintendent of Schools, Magnolia, Mississippi. (601) 783-2575

11. ES000126

PLANNING GRANT APPLICATION FOR SUPPLEMENTARY EDUCATIONAL CENTER

Department of Education, San Diego County, San Diego

OE No. 66–507 Planning Project

Amount sought $358,563

A center is to be planned by a five-member task group taking into account the educational needs of the community and available educational and cultural resources. Survey questionnaires, interviews, and other data collection techniques are to be used for determining needs. Social science and management specialists are to be consulted. District computer facilities will be used to process data. An analysis of needs and resources by the task group will result in recommendations for specific center projects. To be considered are: English as a second language for the Spanish-speaking community; programs for the educationally and economically disadvantaged and for science-oriented students; water safety; and increased learning opportunities for children in rural areas. Number of persons to be served: 280,000 students.

Further information: Dr. Cecil D. Hardesty, Superintendent of Schools, 6401 Linda Vista Road, San Diego, California 92111. (714) 278-6400 Ext. 211

12. ES000133

THE TEXAS COOPERATIVE DISSEMINATION PROJECT

Canyon Independent School District, Canyon

OE No. 66–343 Planning Project

Amount sought $12,772

The area to be served by this project includes

the 26 counties in the Panhandle of Texas. To be planned is a pilot project to find new information in all fields of learning, consider its relevancy to subjects taught in all grades of school, adapt it to the instructional program, make it available to teachers, and help the teacher make use of it. These purposes will be accomplished through the use of information retrieval systems, exemplary programs, new media of communication, consultants, conferences, and clinics. The services of a planning staff will be obtained by contract, a Regional Central Planning Committee of 15 members will be formed, and a Committee of Consultant-Evaluators will be selected. Surveys will be made to verify the assumed need for the program. The number of persons to be served is estimated at 5,000 teachers and 55,000 pupils.

Further information: Huelyn Laycock, Superintendent of Schools, Canyon, Texas. (806) OL 5-2509

13. ES000145

THE SOUTH KINGSTOWN SCHOOL DEVELOPMENT PROGRAM

South Kingstown School Department, Wakefield

OE No. 66–406 Planning Project

Amount sought $21,276

Planning will be done to organize the school to accommodate children with different rates of learning and to revitalize the Adult School. Curriculum will be planned to provide continuity of instruction, to convert "Operation Headstart" efforts into a nongraded program for children of the ages of 4, 5, and 6 based upon the theories of the Gesell Institute, and to appraise the value of the Initial Teaching Alphabet. The most effective use of the talents, training, interest, and experience of the teacher will be planned through team teaching and employment of lay persons in noninstructional capacities. Planning will include consideration of possibilities for establishing a materials center and curriculum laboratory, educational television, and data processing. Study will be given to establishing a community-school type of service. To be planned also is a program to increase cooperation among school systems, community agencies, and universities.

Further information: Lesley H. Browder, Assistant Superintendent, South Kingstown School Department, 71 Columbia Street, Wakefield, Rhode Island. (401) 789-6559

14. ES000146

SURVEY AND EVALUATION OF EDUCATIONAL NEEDS AND RESOURCES OF THE REGION COMPRISED OF ADAMS, CUMBERLAND, PERRY, MIFFLIN, JUNIATA, HUNTINGDON, FULTON, AND FRANKLIN COUNTIES OF PENNSYLVANIA

Joint Board of the Shippensburg Regional Audio-Visual Library and Instructional Materials Center, Shippensburg

OE No. 66–533 Planning Project

Amount sought $38,343

A study for total regional planning and utilization of resources will include experimental learning and demonstration; instructional materials such as library and audiovisual media, psychological and guidance services, curriculum development, inservice education, research and development, electronic data processing, publication and communication facilities, and continuing education. Planning will involve an extensive survey of available human and material resources in an 8-county area ,selection of innovative ideas and exemplary programs to be developed, and development of plans for implementing selected ideas. Representatives of educational and cultural institutions will consider cooperative arrangements which may be developed to provide regional services to the schools. An estimated 107,188 persons will be served by the project.

Further information: Frank L. Hair, Area Curriculum Coordinator, Shippensburg State College, Shippensburg, Pennsylvania. (717) 532-2184

15. ES000147

SUPPLEMENTARY EDUCATIONAL CENTER FOR BUCKS COUNTY

Bucks County Board of School Directors, Doylestown

OE No. 66–366 Planning Project

Amount sought $25,081

To explore ways of developing technology for intensifying the learning process to meet the needs and interests of each pupil, planning committees will study child and youth study services, including diagnostic procedures, staffing patterns, grouping, communicative skills, creativity, and computer technology; instructional media services, including textbooks and nontext materials, industrial and cultural resources, multilevel learning activities, educational television, video tape, humanities curriculum, and library resources for students and teachers; and training, advisory, and consultant services, including personnel training and parent education. A master plan for developing this technology through innovative services and exemplary programs will offer solutions to meet locally identified needs for individualized instruction. A supplementary center is to be organized through which these services and programs will be translated into classroom practice by coordinating research, devel-

opment, evaluation, and dissemination of instructional techniques and educational programs and media. Number of persons to be served: 100,000 students, grades K–12.

Further information: Dr. Charles E. Brewin, Jr., Assistant County Superintendent of Schools, County Administration Building, Doylestown, Pennsylvania. (215) 348-2940

16. ES000148

PLANNING FOR INNOVATION

School District of Philadelphia, Philadelphia

OE No. 66–262 Planning Project

Amount sought $470,112

Focusing initially on the education of disadvantaged and underdeveloped youngsters, a long-range Plan of Innovation will be developed for continued educational program improvement within the District. The schools' linkages to family, neighborhood, and community institutions will be examined and strengthened, taking into account the "community school" concept of neighborhood involvement, full use of community resources particularly in remedial-therapeutic programs, and cooperative efforts with nonpublic school systems. Program, staff, and organization within the schools will be reviewed and extended, including individualized education through nongrading and the "magnet school" concept in which differentiated, integrated education is available on the basis of need and interest; organizing with institutions of higher learning for continuing education programs; possible roles for teacher's aides, other nonprofessional personnel and volunteers; testing new educational technology such as the computer as an instructional vehicle; and a 7-4-4 program of school organization. The plan will incorporate several ESEA titles—a mass effect under Title I, demonstrations of innovative approaches under Title III, and research support under Title IV. The population of the city of Philadelphia is 2,044,000 persons.

Further information: Dr. C. Taylor Whittier, Superintendent of Schools, Parkway at 21st Street, Philadelphia, Pennsylvania 19103. (215) LO 4-3400 Ext. 222

17. ES000150

COMPUTER-BASED TEST DEVELOPMENT CENTER

Multnomah County Intermediate Education District, Portland

OE No. 66–601 Planning Project

Amount sought $12,742

This project results from dissatisfaction with nationally standardized tests and a desire to develop tests locally. These planners declare that national tests are concerned with the performance of students relative to each other but not with attainment of specific objectives of a training program; that is, they serve a normative but not a criterion function. They want to design specific tests for a given set of curricular offerings with a given type of student. The Metropolitan Area Testing Program Board and other participants will plan a computer-based test-development center that can retrieve test items rapidly from a stored pool of items coded by content area and student characteristics. The projects will serve an estimated 170,000 elementary and secondary school students.

Further information: James H. Beaird, Associate Research Professor, Teaching Research Division, Oregon State System of Higher Education, Monmouth, Oregon 97361. (503) 757-1421

18. ES000160

A COOPERATIVE PROJECT AMONG TEACHERS, SCHOOLS, AND INDUSTRY FOR CONTINUED DEVELOPMENT OF MEANS TO IMPROVE LEARNING

Oak Park and River Forest High School, District No. 200, Cook County, Illinois, Oak Park

OE No. 66–189 Planning Project

Amount sought $43,744

A pilot program made possible by a grant from the Knapp Foundation will be continued. It leads to establishing an Instructional Resource Center in a library that stores much information electronically and retrieves it instantly for the benefit of individuals and small groups at a cost permitting schools to develop centers of their own. In a small, electronically equipped carrel, the student will dial a coded number. The material he seeks will appear on a screen as a still picture of pages from books, photographs, maps, charts, tables, graphs, or documents, or films or videotapes with sound, or will be heard as produced by tapes with sound only. The equipment needed to make such a center a reality already exists but never has been brought together to serve education. This project will make possible the crucial step of preparing teachers in the skills needed to make their own audio-visual materials for storage in the center. Master teachers working in the pilot program will be given released time and provided with an experimental workshop where they can develop, create, and preview materials under the guidance of technicians and consultants. The number of persons to be served is estimated at 20,000.

Further information: Lura E. Crawford, Head Librarian, Oak Park-River Forest High School, East Avenue and Ontario Street, Oak Park, Illinois.

19. ES000161

NASSAU COUNTY PLANNING PROPOSAL

Union Free School District No. 15, Towns of Oyster Bay and North Hempstead, Jericho

OE No. 66–326 Planning Project

Amount sought $354,037

An interlocking system of regional service centers will be planned to meet suburban school needs in areas such as curriculum development and adaptation, inservice education, home and school pupil personnel services, communications and media development, library services, cultural and special sciences services, and data automation. Planning is to include inventories of needed resources and services and of those which are available. Visits are to be made to similar regionally coordinated educational programs. County and subregional pilot action services and centers will be designed and implemented. A center may provide services such as diagnosis of learning and adjustment problems, psychotherapy for students and their families, and special personnel, including psychologists, speech therapists, reading specialists, and guidance counselors. Number of persons to be served: 500,000, including preschoolers, elementary and secondary school students, and adults.

Further information: Kenneth J. Dunn, Executive Director, The Education Council for School Research and Development, 450 Jericho Turnpike, Mineola, New York 11501. (516) PI 2-5135

20. ES000163

TEXAS GULF COAST SCIENCE EDUCATIONAL RESOURCES CENTER

Houston Independent School District, Houston

OE No. 66–86 Planning Project

Amount sought $25,814

A detailed analysis will be made of the need in the Gulf Coast area, which includes Harris and adjacent counties, for a Science Educational Resources Center, and information will be collected about ways and means of meeting the need. The activities of the proposed center would be to demonstrate new ways to teach laboratory science and do research; to make scientists available to assist instruction; to establish procedures for scientific field trips; to organize research programs to test materials and methods of science instruction; to establish inservice programs; to plan student projects in cooperation with institutions of higher education; and to develop television and radio programs. Several existing pilot projects will be extended and the feasibility of a number of projects will be established, including traveling museum exhibits and use of computer retrievable library systems. This project is estimated to serve 500,000 elementary and secondary science students.

Further information: Joseph Strehle, Supervisor of Science, Houston Independent School District, 1300 Capitol, Houston, Texas 77002. (713) CA 4-9871

21. ES000191

AN AREA SUMMER HUMANITIES PROGRAM ON NON-WESTERN CULTURES FOR NORTHERN WESTCHESTER COUNTY, NEW YORK.

Board of Cooperative Educational Services, First Supervisory Distict, Westchester County, Bedford Hills

OE No. 66–1528 Operational Project

Amount sought $23,716

A humanities program, including computer-assisted instruction, will enroll some 200 high school students in 4-week summer institutes on Africa and Japan.

Further information: Charles Sansone, Fox Lane High School, Mount Kisco, New York. (914) 666-6731

22. ES000203

UTILIZATION OF COMPUTER ASSISTED INSTRUCTION TO IMPROVE STUDENT ACHIEVEMENT AND FACULTY INSTRUCTION IN SECONDARY SCHOOL MATHEMATICS AND SCIENCE

Altoona City School District, Altoona

OE No. 66–1324 Operational Project

Amount sought $207,386

The capacity of an existing computer installation will be increased to allow additional terminals for a computer assisted instructional program in mathematics and science.

Further information: Dr. Thomas R. Heslep, Superintendent, Altoona City Schools, 1415 Seventh Avenue, Altoona, Pennsylvania 16603. (814) 944-8101

23. ES000209

SURVEY AND EVALUATION OF EDUCATIONAL NEEDS AND RESOURCES OF THE REGION COMPRISED OF CENTRE, CLEARFIELD, CLINTON, AND LYCOMING COUNTIES OF PENNSYLVANIA

Centre County Board of Education, Bellefonte

OE No. 66–950 Planning Project

Amount sought $66,864

A regional study of needs and resources will emphasize experimental learning, instructional materials, guidance services, curriculum development, inservice education, data processing, continuing education, and cultural enrichment.

Further information: C. Herbert Larson, Jr., Area Curriculum Coordinator, Lock Haven State

College, Lock Haven, Pennsylvania 17745. (717) 748-3465

24. ES000231
AREA IX TOTAL INFORMATION SYSTEM
Scott County Board of Education, Davenport
OE No. 66–1557 Operational Project
Amount sought $841,603

A pilot project utilizing data processing for information retrieval will be operated for a 3-county, 5-district area.

Further information: Louis L. Pickett, Superintendent, Scott County Public Schools, Court House, Davenport, Iowa 52801. (319) 322-3511

25. ES000249
A PROPOSAL FOR PLANNING A METROPOLITAN EFFORT TOWARD REGIONAL OPPORTUNITY
The Wethersfield Board of Education, Wethersfield
OE No. 66–995 Planning Project
Amount sought $90,210

An Advisory Committee and staff will examine the educational needs of Hartford County and will establish priorities for planning a regional operational project to include data processing and computer programs.

Further information: Dr. John E. Deady, Superintendent of Schools, 222 Main Street Wethersfield, Connecticut 06109. (203) 529-8611

26. ES000250
IMPROVEMENT OF EDUCATIONAL EXPERIENCES FOR ALL STUDENTS THROUGH THE DEVELOPMENT OF A MODULAR CURRICULUM
Independent School District No. 274, Hopkins
OE No. 66–546 Planning Project
Amount sought $43,728

A modular secondary school curriculum is to be planned to offer students opportunities for continuous progress. Data processing will be used for assigning students according to ability to flexibly scheduled small groups or "modules." A study of how innovative methods of instruction and more efficient organization may be incorporated into an educational system will take into consideration programs such as independent study, open laboratories, resource centers, student grouping, guidance and counseling, allocation of class time in subject-matter areas, student and teacher schedules, class size and loading, and teaching aids. Planning steps are to include forming an advisory committee to guide the planning staff; reviewing research results; analyzing pilot programs; developing inservice training for teachers and administrators; designing an application of technical and operational requirements for the proposed curriculum; translating input data requirements into machine processable form; simulating a modular system; preparing the final system curricular design; and establishing a master plan for implementing a modular curriculum. Number of persons to be served: 350,000 pupils and 18,000 staff members.

Further information: M. H. Ojala, Assistant Principal, 1001 Highway #7, Hopkins, Minnesota 55343. (612) 935–5571 Ext. 30

27. ES000251
COORDINATED DATA PROCESSING SERVICE AND FACILITY
Suburban School Service Joint Board, Edina
OE No. 66–239 Planning Project
Amount sought $56,225

The facility to be planned would coordinate the development of data processing services to the schools; provide a system for information storage and retrieval; offer inservice training for school personnel; and undertake the research and development of computer applications in educational management and instruction. Planners are to consider developing an exemplary coordinated total educational information system to support instructional programs in the schools; using supportive data services to improve guidance and counseling programs; and making available equipment and personnel for the development of pilot programs in the instructional use of computers. To be developed in coordination with the State Department of Education, the center may become the first stage in the establishment of a statewide educational information system. Number of persons to be served: 325,000 pupils and 16,000 professional staff members.

Further information: Willis F. Shaw, Treasurer, 5701 Normandale Road, Edina, Minnesota 55424. (612) 927-9721.

28. ES000254
INYO-SAN BERNARDINO COUNTIES PLANNING GRANT
Office of the County Superintendent of Schools of San Bernardino County
OE No. 66–272 Planning Project
Amount sought $236,533

This project is to include a survey of the area's educational needs, gathering data about exemplary programs, examination of pertinent research, exploration of available resources, analysis of data, and establishment of priorities. It is to result in plans for supplementary educational centers and exemplary educational programs to serve both counties. Emphasis will be on educational televi-

sion and radio, year-round use of school and community facilities, inservice training for teachers, data processing, a mobile child guidance clinic, a mobile health unit for children, mobile centers for art museum services, a mental health program combining guidance and curriculum services, extensive educational trips, and use of community cultural resources. Number of persons to be served: 200,000 students.

Further information: Roy C. Hill, County Superintendent of Schools, 5th Floor, Hall of Records, 172 West Third Street, San Bernardino, California 92403. (714) TU9-0111 Ext. 412

29. ES000261

PLANNING A PILOT PROGRAM K–12

Timberlane Regional School District, Plaistow

OE No. 66–505 Planning Project

Amount sought $31,100

A model school district, grades K–12, will be planned to include the following programs: Elementary level—library resources to encourage individual study skills and independent research; an organizational pattern of nongraded instruction for developing individualized study; coordination of subject-matter areas with the high school curriculum; guidance teams of counselors and social workers; expanded services in art, music, foreign languages, and physical education; and improved programs for the atypical child. Secondary level—cooperative team teaching and variable group instruction; flexible scheduling; maximum utilization of new technology, including data processing, educational television, and learning resource centers; and a regional teacher-educational program. The exemplary system is to demonstrate to schools throughout the State how existing facilities may be adapted to new ideas and how innovations may be incorporated into curriculum development and construction. The population of the District is 6,500 persons of whom 1,568 are students.

Further information: David L. Morris, Timberlane Regional School District, P.O. Box 248, Plaistow, New Hampshire 03865. (603) 382-8344 Ext. 6.

30. ES000262

REGIONAL INSTRUCTIONAL COMPUTER CENTER

Hamden, Connecticut, Board of Education, Hamden

OE No. 66–954 Planning Project

Amount sought $32,436

The fiscal, administrative, and training requirements of a data center for instruction and guidance will be explored by nine school districts.

Further information: Richard Bigelow, Mathematics Instructor, Hamden High School, Hamden, Connecticut. (203) 248-2134

31. ES000272

COOPERATIVE PROJECT TO PROVIDE SUPPLEMENTAL SERVICES TO A GROUP OF ELEMENTARY AND SECONDARY SCHOOLS OF NEW MEXICO

Board of Education of the City of Santa Fe

OE No. 66–48 Operational Project

Amount sought $916,953

An education services center for central and northern New Mexico (the general area served by the New Mexico Research and Study Council) will provide for curriculum development in reading, vocational education, and health and physical education; an instructional materials laboratory; audiovisual equipment; and library, industrial arts, and science mobile units. Psychological services will include guidance and counseling; testing and test scoring; programmed learning; research; and speech therapy. The center will also offer music and cultural programs, special education, a planetarium, adult education, and data processing. Twenty-six school systems now affiliated in the Council will make use of the center as a facility and clearing house for cooperative educational activities. Number of persons to be served: 131,000 elementary and secondary school students; 3,500 school staff members; 9,500 preschoolers; and 30 adult students.

Further information: Orien C. Shockley, Superintendent, Santa Fe Public Schools, Santa Fe, New Mexico 87501. (505) 982-2631.

32. ES000316

SURVEY AND EVALUATION OF EDUCATIONAL NEEDS AND RESOURCES OF THE REGION COMPRISED OF CLARION, FOREST, JEFFERSON, MERCER, AND VENANGO COUNTIES OF PENNSYLVANIA

Jefferson County Board of Education, Brookville

OE No. 66–84 Planning Project

Amount sought $143,234

Total community planning for improved education is to include an extensive survey of human and material resources in the 5-county area; cooperation with educational and cultural institutions to determine the best ways of using these resources in meeting the needs of area school children; selecting ideas for operational projects; and developing plans for implementing these ideas. To be considered are: experimental learning and demonstration, instructional materials, psychological and guidance services, curriculum development, inservice education, research and development, electronic data processing, publication and communi-

cation facilities, and continuing education. An advisory committee will be comprised of county superintendents and representatives from local school districts, private schools, and other educational agencies. Number of persons to be served: 71,350.

Further information: John D. McLain, Area Curriculum Coordinator, Clarion State College, Clarion, Pennsylvania. (814) 226-6000 Ext. 236

33. ES000332

DATA RETRIEVAL SYSTEM

Beverly Hills Unified School District, Beverly Hills

OE No. 66–1150 Planning Project

Amount sought $88,134

An automatic information retrieval system for retrieving both audio and visual information will be tested in the instructional program of four elementary schools as a pilot project.

Further information: Dan M. Gibson, Director of Instructional Materials, Beverly Hills Unified School District, 225 So. Lasky Drive, Beverly Hills, California 90212. (213) 278-1480

34. ES000333

PALO ALTO UNIFIED SCHOOL DISTRICT COMPUTER-BASED STUDENT COURSE SELECTION PROGRAM

Superintendent of Palo Alto Unified School District, Palo Alto

OE No. 66–1701 Planning Project

Amount sought $55,355

Planning and a pilot project will be undertaken to develop a guidance program that uses a computer to aid students in selecting courses.

Further information: Murray Tondow, 25 Churchill Avenue, Palo Alto, California. (415) 327–7100

35. ES000354

A COMPACT TO PROMOTE AND IMPLEMENT CURRICULAR AND SCHEDULING INNOVATIONS IN SECONDARY SCHOOLS

Woodburn Public Schools, Woodburn

OE No. 66–1700 Planning Project

Amount sought $36,430

A computerized modular scheduling system will be developed to serve schools throughout the State.

Further information: Ray L. Talbert, Bend Senior High School, 230 East Sixth Street, Bend, Oregon. (503) 382-2131.

36. ES000385

EDUCATIONAL DEVELOPMENT THROUGH TECHNOLOGY

Dover Special School District, Dover

OE No. 66–1253 Planning Project

Amount sought $158,900

The project will be the nucleus of a State educational information technology system to provide educational research and development services and will involve staff members, teachers, students, and State Department of Education and University of Delaware personnel.

Further information: Justin W. Wilson, Jr., Superintendent of Schools, Dover Special School District, 945 Forrest Street, Dover, Delaware 19901. (302) 734-4101

37. ES000401

ENVIRONMENTAL LEARNING CENTER

Burnt-Hills-Balston Lake Central Schools, Scotia

OE No. 66-1480 Operational Project

Amount sought $126,718

Multimedia electronic carrels will be installed to provide students increased opportunities for independent study through an instamatic dial system, computer-assisted instruction, and programed units.

Further information: Mrs. Mary Joan Egan, Library Department Chairman, 491 Saratoga Road, Scotia, New York 12302. (518) 399-1175

38. ES000405

THE ESTABLISHMENT AND MAINTENANCE OF A CENTER FOR THE DEMONSTRATION OF COMPUTER-AIDED INSTRUCTIONAL SYSTEMS AND OTHER COMPLEX EDUCATIONAL MEDIA

Board of Cooperative Educational Services, First Supervisory District, Westchester County, Bedford Hills

OE No. 66–1494 Operational Project

Amount sought $122,369

A center will demonstrate ways to individualize instruction through the use of media such as the dial-selection system and video tape recorders, and with the aid of computers.

Further information: Walter Goodman, Title III Project Director, BOCES Center for Educational Services, 845 Fox Meadow Road, Yorktown Heights, New York. (914) 245-7031

39. ES000414

REGIONAL EDUCATIONAL DATA PROCESSING AND INFORMATION SYSTEM

Board of Cooperative Educational Services, First Supervisory District, Erie County, Buffalo

OE No. 66–1458 Planning Project

Amount sought $14,200

An educational information system utilizing computer technology will be planned to include an area-wide computer complex, individual computer based instruction, and a computer available to all area schools for instructional purposes.

Further information: Delbert Repp, Director of Educational Data Processing, Board of Cooperative Educational Services, 99 Aero Drive, Buffalo, New York 14225. (716) 634-8333

40. ES000450

EDUCATIONAL RESOURCES COOPERATIVE ASSOCIATION CENTER

Tex., Sherman, Grayson County Public Schools
Project Number DPSC–66–1233
Amount sought $801,657
Descriptors—Consultants, Curriculum Development, Information Dissemination, Inservice Programs, Learning Difficulties, Learning Laboratories, Resource Centers, Rural Areas, Statistical Data

A new resource center will serve as a learning laboratory and as a base for collecting information on curriculum development in a four-county semi-rural area. Information will be gathered. Data will be assessed for developing more effective learning programs, and evaluations will be conducted. The informational part of the center will have three computers for continuous compiling and analyzing of such data from individual schools as student records and test scores. The data can be useful in educational and community planning. The learning laboratory will determine characteristics of local school programs and individual learning difficulties identify talented and other students, and determine needs for additional programs. The laboratory will provide resource materials demonstrate superior teaching/learning situations, house exhibition and loan library collections, and serve a curriculum development function. Inservice programs designed for small groups of teachers will be provided, directed by consultants and approximately 34,968 public and 1,486 nonpublic school students at the elementary and secondary levels and 1,202 teachers will be served.

Further information: Dr. Garmon B. Smith, Chairman, Education and Psychology Department, Austin College, Sherman, Texas 75091. (214) 892-9101

41. ES000477

A PLAN TO IDENTIFY THE USE AND FEASIBILITY OF AN INFORMATION, STORAGE AND RETRIEVAL SYSTEM TO SELECTED SCHOOLS IN THREE COUNTIES

Westmoreland County Board of School Directors, Greensburg
OE No. 66–1148 Planning Project
Amount sought $121,992

Various systems of storing and retrieving instructional materials and information will be investigated; a pilot program will develop instructional materials and evaluate the systems.

Further information: Arthur W. Reardon, Assistant County Superintendent and Director, Westmoreland County Regional Instructional Materials Center, 140 East Otterman Street, Greensburg, Pennsylvania. (412) 837-2815.

42. ES000518

CENTRAL MINNESOTA EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL

Independent School District #47, Sauk Rapids
OE No. 66-1129 Planning Project
Amount sought $48,825

Planning will be done to coordinate activities of all schools in seventeen counties; a research program, inservice training, data processing, and instructional television may be provided.

Further information: K. L. Halvorson, Superintendent, Sauk Rapids Public Schools, 901—1st Street South, Sauk Rapids, Minnesota 56379. (612) 251-7373

43. ES000523

INNOVATION IN EDUCATIONAL AUTOMATION

Pa., Coatesville, Area School District
Project Number DPSC–66–1221
Amount sought $562,605
Descriptors—Autoinstructional Aids, Carrels, Gifted, Guidance Services, Individual Instruction, Information Retrieval, Language Laboratories, Vocational Education

Automated programs in many subject areas, stored in a random-access, information retrieval system and disseminated by a variety of audiovisual media, will provide individualized instruction to approximately 1,200 students in grades 11 and 12. Programs will be recorded on video tape and can be retrieved from a number of individual study carrels located throughout the school building, providing individual instruction at any time of day. The rate at which large-group instruction should proceed will be ascertained and areas where students need individual help will be identified. Small-group courses will be available to gifted students in addition to providing programed instruction. The retrieval system will provide such guidance services as entrance requirements for colleges and job opportunities in the community. A language laboratory and programed instruction in the use of business machines and mechanical equipment will also be included.

Further information: Dr. Ross L. Bortner, Assistant Superintendent, Coatesville Area School District, Administration Building, 1515 East Lincoln Hwy., Coatesville, Pennsylvania 19320. (215) 384-8100

44. ES000534
OREGON TOTAL INFORMATION SYSTEM (OTIS)
Board of Education for the Intermediate Education District, Lane County
OE No. 66–1579 Planning Project
Amount sought $345,424

A study will be made of existing data processing and computer-oriented systems to improve administrative management in Oregon schools.

Further information: Dr. William C. Jones, Superintendent, Lane County Intermediate Education District, 748 Pearl Street, Eugene, Oregon. (503) 342-5576

45. ES000558
MIAMI VALLEY AREA CURRICULUM LABORATORY AND SERVICE CENTER
Ohio, Dayton, Montgomery County Board of Education
Amount sought $495,947
Descriptors—Audiovisual Aids, Community Resources, Curriculum Development, Data Processing, Educational Television, Electromechanical Aids, Field Trips, Handicapped, Inservice Programs, Instructional Materials, Programed Instruction, Resource Centers, Special Programs, Teacher education

New curriculum materials, technological devices, and educational techniques will be developed, demonstrated, and used to improve the educational program of elementary and secondary school students. A center will be set up to instruct teachers in the following skills—(1) programing of instruction, (2) the use of local resources including field trips, (3) the use and preparation of audiovisual aids, (4) the use of telelecture or radio as an instrument of class instruction, (5) the selection, production, utilization, evaluation, and storing of motion pictures and filmstrips, and (6) techniques of evaluation and experimentation and methods of reporting research findings, other services related to instructional television, data processing, personnel recruitment and certification, cooperative vocational programs, special programs for the handicapped. Mental health, and public information will be explored. Satellite centers will be provided in each county and learning centers will be set up in each school system or school.

Further information: Dr. Kenneth Crim, Superintendent, 325 West Second St., Dayton, Ohio 45402. (513) 461-5836

46. ES000559
TEACHING MATHEMATICS THROUGH THE USE OF A TIME SHARED COMPUTER
Champlain Valley Union High District #15, Hinesburg
OE No. 66–2173 Planning Project
Amount sought $24,502

Plans will be made to develop a program of computer-assisted instruction for academic students at the eleventh and twelfth grade levels and for non-academic secondary students of mathematics; a pilot project will be established and comparisons made with classes taught by standard methods.

Further information: Arthur H. Cheney, Superintendent of Schools, P. O. Box 127, Shelburne, Vermont 05461. (802) 862-4690

47. ES000568
PLANNING A SUPPLEMENTARY EDUCATIONAL CENTER FOR CONTINUING SERVICES WITH PILOT PROJECTS AND OPERATIONAL PROGRAMS FOR SOUTHEASTERN SOUTH DAKOTA
S. Dak., Sioux Falls, Indep. School District 1
Project Number DPSC–66–2378
Amount Sought $385,462
Descriptors—Carrels, Computer Oriented Programs, Individual Instruction, Programmed Instruction, Remedial Programs, Tape Recordings

A center will be planned to serve students from 21 counties. Educational and cultural needs will be investigated, priorities determined, and specific programs recommended. The services of a State-owned computer center will be used to develop pilot projects of programed instruction, computer-assisted instruction, and learning centers. Programed instruction will be geared to individual abilities and speeds. Computer-assisted instruction will be used to teach specific concepts. Learning centers will be developed as an extension of the library and will be equipped with tape recorded lectures in music education, history, science, foreign languages, mathematics, and business courses. Remedial and special-help tapes will also be provided. Individual study carrels will be equipped with a dial and headset so students can dial the central computer to hear tape-recorded materials. Approximately 263,952 residents live in the 21 counties.

Further information: E. W. Skarda, Superintendent, Independent School District No. 1, Sioux Falls, South Dakota 57102. (605) 336-3580.

48. ES000586
COMPUTER USES IN EDUCATION
Santa Barbara High School District, Santa Barbara
OE No. 66–2710 Operational Project
Amount sought $81,292

The facilities of a community computer center will be utilized to measure the effectiveness of com-

puter assistance in high school mathematics and physics; an experimental group taught with computer assistance in each subject will be compared with a control group taught in the traditional manner by the same teachers.

Further information: Norman B. Scharer, Superintendent of Schools, 1235 Chapala Street, Santa Barbara, California 93104. (805) 965-7021

49. ES000595
SUPPLEMENTARY MATHEMATICS AND SCIENCE CENTER
School Board of the City of Richmond, Richmond
OE No. 66–1810 Operational Project
Amount sought $497,266

A center will be established to offer presently unavailable opportunities in mathematics and science to advanced students and the whole community; to include computer instruction, individual science experimentation, access to a science and mathematics museum, and instruction in astronomy and the earth sciences.

Further information: Dr. H. S. Willett, Superintendent, Richmond Public Schools, Richmond, Virginia 23219. (703) 649-5301

50. ES000599
COMPUTER-CONTROLLED MEDIA RESOURCE AND DATA CENTER FOR AREA XV, IOWA
Wapello County Board of Education, Ottumwa
OE No. 66–1880 Operational Project
Amount sought $463,693

A combined Computer-Controlled Media Resource Center and Regional Data Center will be established to provide easy access to a comprehensive inventory of instructional materials and equipment for the teachers in 10 counties, maintain a library of media resources, store computer information about the media, provide for teacher requests for media by teletransmission, ship such materials, and conduct training programs in media usage and preparation for inservice teachers. The Data Center will store and retrieve data about pupils, schools, expenditures, etc., useful in school administration, fiscal accounting, and instruction.

Further information: Melvin A. Evringham, Superintendent, Area XV, Iowa Technical Education Center, Ottumwa, Iowa 52501. (515) 684-6597

51. ES000607
COOPERATIVE PROJECT AMONG TEACHERS, SCHOOLS AND INDUSTRY FOR CONTINUED DEVELOPMENT OF MEANS TO IMPROVE LEARNING
Ill., Oak Park, Oark Park-River Forest HS Dist 200
Project Number DPSC–66–1917
Amount sought $992,800
Descriptors—Audiovisual Aids, Autoinstructional Aids, Carrels, Individual Instruction, Information Retrieval, Information Storage, Instructional Materials Centers, Radio, Small Group Instruction, Television, Video Tape Recordings

A library-located instructional resource center will be established to electronically store vast amounts of information and make that information instantly retrievable for individual or small-group instruction. The center will be able to transmit audio and video programs, including slides, motion pictures, video tapes, and radio and television programs via a dial-select system. The system will be able to handle 224 master programs. Approximately 25 study carrels will be hooked up to the system, equipped with headsets and video units. Students will gain access to information by dialing the coded number of selected material. Approximately 13,900 elementary and secondary students from public and nonpublic schools will be served.

Further information: Miss Lura E. Crawford, Head Librarian, Oak Park and River Forest High School, East Ave. and Ontario St., Oak Park, Illinois 60302. (312) 383-0700

52. ES000618
USE OF COMPUTER-ASSISTED INSTRUCTION FOR MATHEMATICS INSERVICE EDUCATION OF ELEMENTARY SCHOOL TEACHERS
Williamsport Area School District, Williamsport
OE No. 66–1970 Operational Project
Amount sought $864,326

Inservice training in modern mathematics for elementary school teachers will be conducted using a newly developed program with a computer.

Further information: Samuel M. Long, Assistant Superintendent, Williamsport Area School District, 845 Park Avenue, Williamsport, Pennsylvania 17701. (717) 787-5976

53. ES000639
DISPERSED SUPPLEMENTARY EDUCATIONAL SERVICES CENTER
N.Y., Rochester, Sch. Dist. 3, Town of Irondequoit
Project Number DPSC–66–2099
Amount sought $864,326
Descriptors—Art Activities, Closed Circuit Television, Computer-Oriented Programs, Data Processing, Exhibits, Graphic Arts, Inservice Programs, Lecture, Library Services, Programed Instruction, Programing, Statistical Data, Video Tape Recordings

New services will be offered to students from nine counties in the areas of graphics, library programs, computer-oriented programs, and art. A

graphics center will provide mobile facilities for television taping to serve closed-circuit systems in the schools. Library services will include development of a curriculum library, book-cataloging services, and a copying service for students and teachers. Computer-oriented programs will include high school courses in programing, computer-assisted instruction, and data-processing services for scheduling purposes, student records, and statistical information. Art services will consist of traveling art exhibits, lectures, and demonstrations by visiting artists. Inservice programs will be offered in many areas. Approximately 112,500 elementary and secondary students from public and nonpublic schools will be served.

Further information: Byron B. Williams, Executive Secretary, Genesee Valley School Development Association, Taylor Hall, College of Education, University of Rochester, Rochester, New York 14623 (716) 473-3000

54. ES000656

PLANNING A SUPPLEMENTARY EDUCATIONAL CENTER AND FOR CONTINUING SERVICES WITH PILOT PROJECTS AND OPERATIONAL PROGRAMS FOR WESTERN SOUTH DAKOTA

S. Dak., Rapid City, Douglas Indep. Sch. Dist. 3
Project Number DPSC–66–2221
Amount sought $523,795
Descriptors—Data Processing, Information Storage, Inservice Programs, Physical Education, Remedial Reading, Telephone Communication Systems

A center will be planned and five projects conducted to serve students from 17 counties. One project will involve planning a data-processing reporting system to exchange and compare performance data among 18 school districts. Each district will be connected to a central computer where management and student records will be stored. Long-range plans include such possibilities as master scheduling and programed instruction. The second program involves a telephone communication system for group and individual conference purposes. A touch-tone type telephone will be installed in each of 18 school districts to improve communications and make more effective use of time by school personnel. The third project will be a tumbling and gymnastics program for grades 1–12 in a city school system to improve motor skills, teach balance and coordination, improve strength, grace, and poise, and improve physical fitness. Project four will involve a mobile remedial reading classroom—staffed with a remedial reading teacher—which will visit each of 21 schools 12 times per month. The fifth project involves inservice training, including a formal training program for county superintendents and a basic skills workshop for teachers. Approximately 45,706 students will be served.

Further information: Robert R. Spelts, Superintendent, Douglas Independent School District 3. Ellsworth Air Force Base, South Dakota 57707. (605) 923-1431

55. ES000671

PERSONALIZATION OF LEARNING ACHIEVED THROUGH ORGANIC-EVALUATION

Anniston City Board of Education, Anniston
OE No. 66–2337 Operational Project
Amount sought $526,862

An evaluation system will be programed for computers to permit continuous diagnosis of pupil progress.

Further information: J. Revis Hall, Superintendent of Schools, Anniston City Board of Education, 1429 Woodstock Avenue, Anniston, Alabama 36201. (205) 237-2808

56. ES000693

EDUCATIONAL INTELLECTUAL CENTER

Yonkers City School District, Yonkers
OE No. 66–2475 Operational Project
Amount sought $369,455

An educational intellectual center will provide computer based library services and educational materials to students and professional personnel in Yonkers and the surrounding area.

Further information: Stanley Wynstra, Superintendent, 138 South Broadway, Yonkers, New York 10701. (914) 936-4567

57. ES000745

MATHEMATICS COMPUTER CENTER

Clark County School District, Las Vegas
OE No. 66–1535 Operational Project
Amount sought $102,985

Students of mathematics in seven secondary schools of Clark County will have access to a computer either at the Center or through teletype lines. Inservice courses will be organized to help teachers utilize the Center in their courses.

Further information: William Merz, Special Assistant for Research and Project Design, P.O. Box 551, Las Vegas, Nevada 89100. (702) 736-5236

58. ES000757

COMPUTER CONTROL SYSTEM AND SERVICE FACILITY TO ENHANCE QUALITY EDUCATION AND TO EVOLVE OPTIMAL DISTRIBUTION PATTERNS FOR LARGE URBAN CENTERS

Board of Education, City of Chicago, Chicago

OE No. 66–2072 Operational Project
Amount sought $449,966

A computerized control system will be established for effective distribution of educational films and audio-visual media throughout the Chicago public school system.

Further information: James F. Redmond, General Superintendent of Schools, 228 North LaSalle Street, Chicago, Illinois 60601. (312) 332-7800 Ext. 427

59. ES000770
A COMPUTER-ASSISTED INSTRUCTION LABORATORY IN MATHEMATICS AND SCIENCE
Board of Education of Kansas City, Missouri
OE No. 66–2293 Planning Project
Amount sought $47,703

Plans will be made for the utilization of a computer-assisted instruction laboratory in the junior high school program. A science and mathematics curriculum will be designed to make effective use of such a laboratory.

Further information: James A. Hazlett, Superintendent, School District of Kansas City, 1211 McGee, Kansas City, Missouri 64106. (816) 221-7565

60. ES000776
AUTOMATED DATA ANALYSIS FOR INSTRUCTION AND RESEARCH
Hayward Unified School District, Hayward
OE No. 66–2631 Planning Project
Amount sought $21,685

Computer programing and problem solving techniques will be incorporated in mathematics, social and physical science, and business courses at the high school level.

Further information: Scott D. Thomson, Principal, Cubberly High School, Palo Alto Unified School District, 25 Churchill Avenue, Palo Alto, California 94544. (415) 327-7100 Ext. 5558

61. ES000784
EDUCATIONAL REORGANIZATION AND REORIENTATION THROUGH THE PERSONALIZATION OF INSTRUCTION
Anniston City Schools Anniston
OE No. 66–858 Planning Project
Amount sought $54,485

A new approach to public education will be planned that will require designing new and unique physical facilities, reorganizing faculty, and creating a new relationship among the students, community, home, and school. The lessons for all students will be so designed that each may progress at his own rate of learning. A close surveillance on each child's progress will be maintained by the academic counselor and guidance counselor with the aid of a computer.

Further information: Floyd McLeod, Administrative Assistant, Anniston Public Schools, Anniston, Alabama 36201. (205) 237-5508

62. ES000808
INFORMATION DISSEMINATION CONCERNING EXEMPLARY PROGRAMS
Claremont Unified School District, Claremont
OE No. 66–1479 Operational Project
Amount sought $53,186

An information service will be established to disseminate information regarding three exemplary programs under way in the district. These programs involve a team teaching project, an ungraded primary education program, and a computer based flexible scheduling program at the secondary level.

Further information: Dr. John B. Brinegar, Superintendent, Claremont Unified School District, 2080 North Mountain Avenue, Claremont, California 91711. (714) 624-9041

63. ES000811
PROVISION FOR RESTRUCTURE IN INDEPENDENT STUDY MODELS (PRISM)
Calif., Covina, Covina-Valley Unified Sch. Dist.
Project Number—DPSC–66–1537
Amount sought $137,893
Descriptors—Able students, Audiovisual Aids, Data Processing, Independent Study, Study Skills

School staff members and multimedia materials will be developed in high school resource centers to help students use resources more effectively, improve study skills, and increase academic performance in specified academic, pretechnical, and vocational areas. Current independent study environments will be restructured and amplified. Special attention will be given to the needs of middle-range students, orienting them to more realistic technical and vocational goals and offering more information to them through visual and audio communication. A district data-processing center will be used for storage and retrieval of student information. Such audiovisual aids as tape recorders, teaching machines, projectors, multiple listening posts, and tape and film libraries will be purchased to provide more sensory stimulation for the students approximately 1,788 secondary school students will be served.

Further information: Dr. Ragene Farris, Director Curriculum Planning, Secondary, Covina-Valley Unified School District, 19009 E. Badillo, Covina, California 91722. (213) 331-3371

64. ES000814

VISUAL RETRIEVAL READING CENTER

Linda Elementary School District, Marysville

OE No. 66–1645 Planning Project

Amount sought $19,500

A reading center will be established to serve students, train teachers, and offer social, psychological, and health services utilizing a dial telephone system to retrieve information stored on tapes in areas such as history, music, linguistics, and reading.

Further information: Donald K. Morales, Assistant Superintendent, Yuba County Schools Office, Yuba County Courthouse, Marysville, California 95901. (916) 743-1511

65. ES000842

EDUCATIONAL DATA PROCESSING

Concordia Parish School Board, Vidalia

OE No. 66–852 Planning Project

Amount sought $22,049

Investigation will be undertaken of the need for a data processing system, including a small computer, to be used in modernizing the curriculums on science, mathematics, and business courses in area school districts.

Further information: J. O. Lancaster, Superintendent, P.O. Box 548, Vidalia, Louisiana 71373. (318) 336–4226

66. ES000851

TUSCARAWAS VALLEY 6–1–77 EDUCATIONAL SERVICE CENTER

Ohio, Dover, Tuscarawas County Board of Education

Project Number DPSC–66–974

Amount sought $924,829

Descriptors—Cultural Enrichment, Curriculum Development, Data Processing, Demonstration Programs, Exhibits, Fine Arts, Inservice Teacher Education, Libraries, Resource Centers, Talent Utilization

A multipurpose center will be established to offer cultural enrichment, curriculum development, creative organization, and supportive services to students from six counties. Cultural enrichment activities will emphasize art, music, and dramatic arts, curriculum development services will be related to changes which can be achieved through evaluation of research and pilot projects and implementation of new teaching methods. Services related to creative organization will involve using the talents and resources of the area for educational improvement. Supportive services will include model classrooms, a professional library, conference and observation facilities, inservice training programs, data processing services, exhibits, and consultant advice. Approximately 50,219 elementary and secondary students from public and nonpublic schools, plus 1,800 teachers, will be served.

Further information: Dr. Linton R. Honaker, County Superintendent of schools, 408 South Tuscarawas Ave., Dover, Ohio 44622. (216) 4-2872

67. ES000897

REGIONAL RESEARCH AND DEVELOPMENT CENTER-REPORTING STUDENT PROGRESS IN TERMS OF MODULAR PROGRESS

Masconomet Regional District School Committee, Boxford

OE No. 66–1819 Planning Project

Amount sought $16,693

Research studies will evaluate the possibilities of establishing a regional computer center; a new concept of reporting to parents in terms of completion of objectives, rather than in terms of grade comparison, will be developed.

Further information: Julius H. Mueller, Superintendent of Schools, Endicott Road, Boxford, Massachusetts, Mail address: R.F.D., Topsfield, Massachusetts 01983. (617) 887-2323

68. ES000898

COMPUTER AND MATH PROGRAMING

School City of Gary, Gary

OE No. 66–1820 Operational Project

Amount sought $43,718

A course in computer mathematics and programing will be offered to secondary students through the use of facilities at the Illinois Institute of Technology.

Further information: Lee R. Gilbert, Superintendent of Schools, 620 East 10th Place, Gary, Indiana 46402. (219) 885-6193

69. ES000910

AREA XI REGIONAL PROJECT "ACCESS"

Polk County Board of Education, Des Moines

OE No. 66–2000 Operational Project

Amount sought $380,490

Through tele-processing terminals, teachers, pupils, and administrators will be able to use a regional computer; the computer will serve as an instructional tool in all curriculum areas, and as an administrative tool for a local information system.

Further information: Ralph C. Morris, Superintendent, Polk County Public Schools, 216 S.W. First Street, Des Moines, Iowa 50309. (515) 284-6171

70. ES000957

DYNAMIC MULTIPHASE AREA-WIDE DATA PROCESSING CURRICULUM

Traverse Bay Intermediate School District, Traverse City

OE No. 66–2524 Planning Project

Amount sought $27,771

A centrally coordinated multiphase data processing curriculum which will raise the occupational capabilities of many of the area high school and community college students will be planned and developed.

Further information: Byron Anger, Traverse Bay Area Intermediate District Superintendent, Court House, Traverse City, Michigan 49684. (616) 947-6417

71. ES000969

CALIFORNIA REGIONAL EDUCATIONAL INFORMATION CENTERS

Kern County Superintendent of Schools, Fresno County Schools Office, Los Angeles Unified School District of Los Angeles County, Contra Costa County Superintendent of Schools Office, Sacramento County Superintendent of Schools, San Francisco Unified School District, County of Orange Superintendent of Schools, Santa Clara County Superintendent of Schools, Sonoma County Superintendent of Schools, Office of the Ventura County Superintendent of Schools; Bakersfield, Fresno, Los Angeles, Pleasant Hill, Sacramento, San Francisco, Santa Ana, San Jose, Santa Rosa, Ventura

OE No. 66–711 Operational Project

Amount sought $846,151

This project is the result of 7 years of research and developmental work sponsored by the Cooperative Research Branch of the U.S. Office of Education and the California State Department of Education. Its purpose is to establish regional supplemental centers to process raw educational data. Two centers are now in operation in the State as prototypes. They offer preservice and inservice training to teachers, counselors, and school administrators in the use of computers. More demonstration and training centers are needed. This project is designed primarily to train center directors and their staffs and to demonstrate the new system of educational intelligence. The additional centers will be established in the 10 counties and will serve an estimated 300,000 students.

Further information: Theodore R. Smedberg, Sacramento County Superintendent of Schools, 6011 Folsom Blvd., Sacramento, California 95819. (916) 454-2821

72. ES000983

DATA PROCESSING INSTRUCTION CENTER

School District No. 5, City of Franklin, Franklin

OE No. 66–800 Planning Project

Amount sought $11,099

A center will be planned in a comprehensive high school to teach automatic data processing and its application to mathematics, science, and business. Emphasis will be on student use, with the possibility of future utilization on a districtwide basis.

Further information: H. E. Guzniczak, Superintendent, P.O. Box 245, Franklin, Wisconsin 53131. (414) 425-2554

73. ES000991

RESOURCE, PRODUCTION AND SERVICE CENTER

Board of Education of the City of Orange, Orange

OE No. 66–924 Planning Project

Amount sought $49,285

A demonstration resource center, a materials production area, a computer center, and a closed circuit television system will be planned.

Further information: Leonard Cronk, Superintendent of Schools, 369 Main Street, Colgate Building, Orange, New Jersey 07050. (201) 675-8282

74. ES001008

CURRICULUM ENRICHMENT CENTER

Board of Cooperative Educational Services of Chenango County, Norwich

OE No. 66–1146 Operational Project

Amount sought $419,034

The center will include facilities for cataloging library and audiovisual materials by data processing, equipment and supplies for the production of teaching materials, and a professional curriculum library.

Further information: Ernest Youmans, District Superintendent, Chenango County, Norwich, New York 13815. (607) 334-2281

75. ES001010

PLANNING A REGIONAL PROGRAM OF COMPUTER INSTRUCTION FOR HIGH SCHOOL STUDENTS

Marion County Intermediate Education District, Salem

OE No. 66–1191 Planning Project

Amount sought $24,585

This planning involves development of computer instruction to augment the current programs in several curricular areas by relating them to computer technology. Provision is made for instruction

in the nature, role, and use of computers as related to these subjects.

Further information: Merlin L. Morey, Superintendent, Marion County Intermediate Education District, County Courthouse, Salem, Oregon 97301. (503) 364-4401 Ext. 81

76. ES001038

AN EDUCATIONAL RESOURCES CENTER

Vicksburg Municipal Separate School District, Vicksburg

OE No. 66–1653 Planning Project

Amount sought $58,140

Plans will be made to establish a resources center using automatic data processing and television to improve teacher education and extend the services of specialized teachers.

Further information: E. B. Martin, Office of the Superintendent, Vicksburg Public Schools, Vicksburg, Mississippi 39180. (601) 636-0160

77. ES001039

REGIONAL EDUCATIONAL DEVELOPMENT ORGANIZATION (REDO)

Consolidated High School District No. 230, Palos Hills

OE No. 66–1665 Planning Project

Amount sought $122,186

Planning will be undertaken to study needs for and develop additional educational programs; to centralize film and record library and computer science resources; and to create a planning center for 63 public school districts in South Cook County.

Further information: Roy Erdman, Director, Business Services, 111th and Roberts Road, Palos Hills, Illinois 60464. (312) 448-8000

78. ES001067

PROJECT TO PROVIDE AN AUTOMATED LEARNING CENTER FOR THE CLOVIS SENIOR HIGH SCHOOL

N. Mex., Clovis Public Schools

Project Number DPSC–66–2069

Amount sought $112,642

Descriptors—Audiovisual Aids, Autoinstructional Aids, Computer-Oriented Programs, High School Students, Individualized Programs, Student Grouping, Study Centers, Tape Recordings

An automated learning center will be established to provide individualized learning situations for high school students. The center will include four study areas with audio and visual or just audio programs. A group console for audio programs, a computer terminal, a slide marker, a tape duplicator, and a recording studio. About 500 teacher-made and commercial audio and audiovisual programs will be available in the study areas and at the group console. A number of computer programs for learning and for assessment of student capabilities will also be offered. The computer will provide information for regrouping students in classrooms according to abilities and needs. The center will be oriented to solving the problems of each student by individualizing his time schedule, content, and activities and providing individual and specially selected, small-group instruction. In-service training will be given to teachers. Approximately 1,300 students will be served.

Further information: Mrs. Bonnie Marriage, Clovis Public Schools, Clovis, New Mexico 88101. (505) 763-3487

79. ES001099

REGIONAL INSTRUCTIONAL COMPUTER CENTER

Hamden, Connecticut, Board of Education, Hamden

OE No. 66–2963 Operational Project

Amount sought $382,076

A suburban educational computer center, designed on the basis of a previous title III planning grant, will be established to serve 12 participating school systems. Three phases of the operational program will consist of (1) development of curriculum and teacher training programs (2) teacher training and pilot use of the facilities (3) installation of remote student councils in participating schools and the implementation of full administrative services.

Further information: David Wyllie, Superintendent of Schools, 75 Washington Ave., Hamden, Connecticut. (203) 248-4497

80. ES001101

OPERATION OF A DIAL SELECT INFORMATION RETRIEVAL SYSTEM FOR TRANSMITTING SELECTED INSTRUCTIONAL MATERIALS VIA A LOW COST INFORMATION TRANSMISSION SYSTEM OWNED AND OPERATED BY THE WEST HARTFORD SCHOOL SYSTEM

Conn., West Hartford, Board of Education

Project Number DPSC–67–3039

Amount sought $259,774

Descriptors—Audio Video Laboratories, Autoinstructional Aids, Carrels, Tape Recordings, Video Tape Recordings

A dial-select information retrieval system will be established to transmit audio and video instructional materials and to provide individual instruction. A pilot program has offered 16 channels to 18 dial-select carrels and viewing stations in a high school. The system will be expanded to 120 chan-

nels serving eight high schools. The system will permit instant student access to audio and video materials required for independent learning projects. New software materials will be developed for use in the dial-select system. A curriculum editor will confer with teachers on software requirements and sequencing of program segments. A programed instruction center at a nearby college will help local teachers produce programed learning materials. Much of the hardware for the system will be furnished by the school district. Project funds will be used for rolls of audio and video tape, rental of a studio for production of materials, an educational information transmission system, and salaries of part-time consultants and full-time curriculum and graphics specialists. Approximately 4,198 elementary and secondary students are enrolled in the area to be served. Inservice activities will serve 240 teachers.

Further information: Dr. Ira J. Singer, Assistant Superintendent of Schools, 7 Whiting Lane, West Hartford, Connecticut 06119. (203) 233-8281

81. ES001156

INTEGRATED EDUCATIONAL INFORMATION SYSTEM

Intermediate School District, County of Macomb, Mount Clemens

OE No. 67–4475 Operational Project

Amount sought $603,092

A centralized computer installation will provide 93 school districts with services in curriculum enrichment, financial management, student records, personnel records, and facilities records. Staff training will insure proper and complete utilitization of the system.

Further information: Harold E. LeFeure, Superintendent, Intermediate School District, Fourth Floor, County Building, Mount Clemens, Michigan 48043. (313) 468-0971

82. ES001175

COUNTYWIDE PROPOSAL FOR SPECIAL SERVICES FOR CHILDREN AND YOUTH WITH EMOTIONAL AND/OR SOCIAL PROBLEMS

Pa., West Chester, Chester County Bd. of Sch. Dir.

Project Number DPSC–67–2872

Amount sought $424,197

Descriptors—Data Processing, Emotionally Disturbed, Inservice Teacher Education, Mental Health Programs, Social Problems, Sociopsychological Services, Special Education

Diagnostic services and treatment will be provided to all children with emotional and/or social problems from the public and nonpublic schools of the county. Two teams will be formed to provide the services. Each team will have a psychiatrist, three psychologists, and three psychiatric social workers. Emphasis will be given to daily environmental control where special recommendations can be carried out. The services will be offered as close to the local school as possible and geographic locations will be changed as the need arises. The program will include the use of a data processing system designed specifically to assimilate and utilize information on exceptional children. The system should be useful in scheduling classes in terms of numbers of students, geographical locations, transportation schedules, and class lists. The system will also be used to record test scores, physical handicaps, and other information. A preventive mental health training program will be conducted through inservice programs for teachers and administrators. Approximately 5,120 elementary and secondary students, or 8 percent of the 64,000 total enrollment, will be served. About 3,175 staff members will participate in inservice activities.

Further information: James A. Huddy, Jr., Public Schools of Chester County, County Office Building, Market and New Sts., West Chester, Pennsylvania 19380. (215) 696-0501

83. ES001185

CONTINUING MULTICOUNTY PLANNING

Pa., California, Joint Board of Tri-County Sch. Dir.

Project Number DPSC–67–3151

Amount sought $126,605

Descriptors—Consultation Programs, Curriculum Development, Data Processing, Educational Resources, Inservice Teacher Education, Vocational Education

A short-term planning program will be converted into a continuous long-range program for the benefit of schools in three counties. Pilot projects currently in operation will be followed up by studies to ascertain their effectiveness in the classroom. Centralized services will be provided to meet determined needs and additional needs will be identified, inservice training will be offered and methods of using the data processing facilities of a nearby technical school will be explored. Human and material resources will be inventoried and programs developed to take advantage of such resources. Special attention will be given to implementing Federal vocational education programs. Consultative assistance will be offered to individual schools in the identification of needs and development of appropriate programs. Approximately 101,798 students from public and nonpublic schools and 3,547 teachers will be served.

Further information: Dr. Dennis P. Burke, area curriculum coordinator, California State College, California, Pennsylvania 15419. (412) 938-2281

84. ES001190

TEXAS GULF COAST SCIENCE EDUCATIONAL RESOURCES CENTER

Tex., Houston, Independent School District

Project Number DPSC–67–2840

Amount sought $658,311

Descriptors—Aerospace Technology, Astronomy, Biological Sciences, Botany, Demonstration Centers, Inservice Teacher Education, Pilot Projects, Resource Centers

A science educational resource center will be established to improve classroom and laboratory instruction in science through curriculum development procedures and inservice training. A sequential plan will be followed, commencing with small-scale pilot operations leading toward the establishment of full-scale centers. Objectives are (1) to modernize the science curriculum, (2) to provide special enrichment programs, including field trips, mobile laboratories, and related activities, (3) to develop inservice programs to implement the new curriculum, and (4) to design techniques for handling information, including computer-retrieval systems, computer-assisted instruction and improved library systems. Pilot programs already in operation include a creative activities project where 18 advanced students worked on individual science projects during the summer. Another pilot project emphasized laboratory experiences for fourth graders. Full-scale centers will include a space science center adjacent to a Federal space complex, a mobile astronomical laboratory, an arboretum, and a model research instructional laboratory center. The latter center will be a demonstration school for grades K–12 with facilities for curriculum development and teacher training. Approximately 11,750 students and 2,100 teachers will participate directly from 19 public school districts and 10 private schools enrolling 405,966 students.

Further information: Dr. Joseph Strehle, Director for Curriculum Research and Development, Houston Independent School District, 1300 Capitol Ave., Houston, Texas 77002. (713) 227-1661

85. ES001194

PLAN TO ESTABLISH AN EDUCATIONAL SERVICE CENTER INCLUDING A REGIONAL MEDIA CENTER

Tex., Corpus Christi, Independent School District

Project Number DPSC–67–3709

Amount sought $164,329

Descriptors—Data Processing, Enrichment Programs, Inservice Teacher Education, Instructional Materials Centers, Material Development, Special Education, Teacher Aides

An educational service center will be established to provide long-range planning services to 48 school districts in 11 counties, and a media center will be planned to provide instructional materials and equipment. Staff development programs will be offered at the media center. Staff members talented in creating new applications of media and other individuals with special skills and talents will be identified. Techniques for training teacher aides in the production and use of instructional media will be determined. Software and hardware available in the participating districts will be inventoried and methods of housing and distributing materials will be developed. Satellite centers may be established in addition to the central media distribution and production facility. Continuing studies will be conducted of regional needs and resources, and priorities will be determined. In addition to inservice training, other priorities will probably be in the areas of diagnostic services for students, enrichment programs for atypical students, and administrative service, such as data processing and cooperative purchasing. Approximately 111,200 students, grades K–12, including some adults, will be served.

Further information: Dr. Dana Williams, Superintendent of Schools, Corpus Christi Independent School District, 515 North Carancahua, Corpus Christi, Texas 78403. (512) 883-5261

86. ES001197

ESTABLISHING EXEMPLARY CENTERS FOR CONTINUOUS PROGRESS EDUCATION

Board of Education of Salt Lake City, Salt Lake City, Utah

OE No. 67–3068 Operational Project

Amount sought $416,112

One or more exemplary elementary schools will be established in each of five school districts as models for continuous progress education wherein each student progresses in accordance with his individual growth timetable and with programs designed to best develop his abilities. The schools will emphasize curriculum and school reorganization, individualized instruction, new instructional media, rapid information retrieval systems, new procedures for reporting pupil progress, and use of teacher interns from local universities.

Further information: Dr. Arthur C. Wiscombe, Deputy Supt., Board of Education of Salt Lake City, 440 East 1st So., Salt Lake City, Utah. (801) 322-1471

87. ES001206

PUGET SOUND ARTS AND SCIENCE CENTER

Wash., Seattle, School District 1

Project Number DPSC–67–3028

Amount sought $1,376,765

Descriptors—Astronomy, Computer Oriented Programs, Dramatics, Exhibits, Experimental Programs, Humanities, Inservice Teacher Education, Mathematics, Music, Physical Sciences, Sciences, Teacher Workshops, Theater Arts

Performing arts, science, and mathematics programs will be continued and expanded at an arts and sciences center. The center's performing arts component will serve districts in all parts of one county and portions of three others. The science and mathematics component will serve five counties. Performing arts programs will include professional performances of opera, symphony and chamber music concerts, plays, dance programs, and science exhibitions. Music coaches, artists, sculptors, and drama coaches will visit classrooms. Inservice workshops will be conducted for teachers. A new humanities program will be experimented with in two high schools. Professional talent and team teaching will be used on a flexible schedule. A second experiment will use professionals for a fourth-grade creative dramatics course. Talented fourth graders will write and produce a play. An arts and sciences festival will be conducted at the center. Science and mathematics programs will include class visits to the center, an astronomy class for students in the center's spacearium, and the following workshops for teachers—(1) introductory physical science for junior high teachers, (2) science for elementary teachers, including demonstration classes, and (3) a summer writing session to develop lessons and teaching aids for students who visit the mathematics learning center at the science complex. A computer terminal will be installed for instructional purposes. Approximately 220,000 students and 1,965 teachers will participate.

Further information: Forbes Bottomly, Superintendent, 815 Fourth Ave. North, Seattle, Washington 98109. (206) 284-6100

88. 001210

REGION V PSYCHOLOGICAL SERVICES CENTER

W. Va., Wheeling, Ohio County Board of Education

Project Number DPSC–67–2802

Amount sought $334,116

Descriptors—Diagnostic Tests, Exceptional Children, Inservice Teacher Education, Mobile Educational Services, Special Education, Statistical Data

A psychological services center will be established to provide diagnostic and referral services to students with special educational problems. Mobile testing units will be used to identify students who need special help in the five counties involved. Inservice training will be offered to key school personnel to help them improve methods of dealing with exceptional children in their respective schools. The training will cover characteristics of exceptional children, teaching techniques, developmental curriculum procedures, counseling, and use of a centralized registry file which will be compiled and stored in a computer system. The file will include data on all exceptional children in the area so that school personnel will have immediate access to vital information. The file will also be used for coordinating programs and services among the schools and for providing data to community groups which, for example, may want to contribute eyeglasses. After information has been compiled and evaluated, special education classes will be organized for exceptional children. Approximately 5,634 elementary and secondary students from public and nonpublic schools will be served.

Further information: George Hackett, Superintendent, Ohio County School System, 2130 Chapline St., Wheeling, West Virginia 26003. (304) 233-1231

89. ES001220

OPERATIONAL LEARNING

Desert Center Unified School District, Eagle Mountain

OE No. 67–4161 Operational Project

Amount sought $139,671

Games and simulations will be incorporated into the central curriculum to teach humanities in one unified school district of a geographically isolated area. Multi-media presentations and computer-aided scheduling will be employed. The games will be designed so that the participants will be required to make decisions as a central part of the learning process. It is hoped that the method will motivate students to study such related subjects as mathematics.

Further information: Otis Mallory, District Superintendent, P.O. Box 475, Eagle Mountain, California 92241. (714) EX 2-4277

90. ES001221

AIR AGE VOCATIONAL PROGRAM

Adams-Arapahoe School District 28–J, Aurora

OE No. 67–3279 Planning Project

Amount sought $25,986

A secondary school vocational curriculum will

be planned to offer students training in airframe and power-plant mechanics, airplane piloting, aircraft ground duties, helicopter piloting, and helicopter mechanics. The program also will provide vocational orientation to electronics, data processing. meteorology, reservation making and ticket selling, operations, and communications.

Further information: William C. Hinkley, Superintendent, 1085 Peoria St., Aurora, Colorado 80010. (303) 364-3331

91. ES001245

PLANNING GRANT TO ESTABLISH AN EDUCATIONAL MEDIA CENTER

Northeastern Instructional Materials Center, Scranton

OE No. 67–4386 Planning Project

Amount sought $18,227

An educational media and communication center will be planned for a five-county area of 51 school districts. It will be a center for materials and resources, curriculum and educational technology development, teacher recruitment and placement, specialists as resource persons for classroom presentations, psychological services, and computer and research services.

Further information: John Arcangelo, Education Program Specialist, 506 Spruce Street, Scranton, Pennsylvania 18503. (717) 346-7071

92. ES001253

A COMPUTERIZED APPROACH TO THE INDIVIDUALIZING OF INSTRUCTIONAL EXPERIENCES

Boulder Valley School District Re 2, Boulder

OE No. 67–3253 Operational Project

Amount sought $147,737

Computer techniques will be used to assist classroom teachers in making decisions about instructional programs for individual students. Teachers will have easy access to computer-stored information about individual student characteristics and curriculum alternatives. The program will include inservice training, a restructured curriculum, and the use of new instructional materials.

Further information: Richard M. Fawley, Director of Curriculum, Research & Statistical Analysis, 1440 Walnut St., Boulder, Colorado 80302. (303) 442-6931

93. ES001256

EDUCATIONAL AUTOMATION

Concordia Parish School Board

OE No. 67–3765 Operational Project

Amount sought $176,909

A data-processing demonstration center will be established for the three-county area. The purposes of the center are to (1) record academic, vocational, and health records of the students; (2) score and record tests; and (3) conduct inservice training in the uses of data processing in guidance, counseling, and curriculum development. The information about each child will be put on tape. The tape will then be used for counseling, reporting to parents, registration, scheduling, etc. Three school districts will be served by the center.

Further information: J. O. Lancaster, Superintendent of Schools, 508 5th Street, Vidalia, Louisiana 71373. (318) 336-4226

94. ES001322

COMPUTER-BASED INSTRUCTION

Board of Cooperative Educational Services, First Supervisory District, Erie County, Buffalo, New York

OE No. 67–2947 Operational Project

Amount sought $364,511

Procedures developed under Title III Planning Grant #OEG–1–6–001458–1055 will be implemented for the utilization of computer-based resource units, computer-assisted instruction, in-service training for administrators and faculty, and general education units aimed at the exposure of pupils to a basic orientation in computers and data processing. Implementation will involve the employment and training of personnel, purchase of required materials, and purchase of computer-time necessary to permit curriculum development which will facilitate and improve instruction.

Further information: Ernest H. Hoeldtke, Supt., Board of Cooperative Educational Services, 99 Aero Dr. Buffalo, N.Y. (716) 634-6800

95. ES001337

INSTRUCTIONAL PROGRAM IN MODERN CONCEPTS OF ENGINEERING FOR ALL SECONDARY TEACHERS AND STUDENTS

Pa., Media, Delaware County Bd. of Sch. Dir.

Project Number DPSC–67–4038

Amount sought $212,999

Descriptors—Automation, Computer-Assisted Instruction, Digital Computers, Engineering, Inservice Teacher Education, Mathematical Concepts, Programing, Scientific Concepts, Skills, Socioeconomic Influences, Summer Programs, Technological Advancement

A summer program will be conducted to train high school teachers in concepts of modern engineering and its relationship to a technologically oriented society. Emphasis will be placed on concepts of digital computers and their use as a modern technological tool. Such topics as the national communications systems network, an urban planning case study including an electronic traffic simu-

lator, and a case study of the optimization of a petroleum industry will also be covered. On completing the course the teachers will be able to use time-shared classroom computers which will be introduced in the near future. The teachers will then implement a high school elective course "Preview of modern concepts in engineering" at their own school. The course should enable students to understand the problems of modern society. Students not usually considering further education should be motivated toward continuing their schooling to obtain modern technological skills. Instructional materials will be developed for the program. College professors will develop further case studies in modern education for the program. The program involves 32 school districts in one county with two additional counties invited to participate. Approximately 6,000 public and nonpublic school students, grades 7–12 will be served.

Further information: D. L. Wise, PMC Colleges, Chester, Pennsylvania 19013. (215) 876-5551

96. ES001358

AIMS ACCESS TO INSTRUCTIONAL MATERIALS AND SERVICES

School District of the City of Omaha, Omaha
OE No. 67–3791 Operational Project
Amount sought $227,280

A dial access retieval system, linked to existing computer facilities, and a closed circuit television station will be planned and operated as a pilot program with one school. The program will include inservice training for teachers in planning, establishing, and operating the facility.

Further information: Owen A. Knutzen, Acting Superintendent, School District of the City of Omaha, 3902 Davenport Street, Omaha, Nebraska 68131. (402) 556-6600

97. ES001393

USE OF COMPUTER-ASSISTED INSTRUCTION TO TEACH SPELLING TO SIXTH GRADERS

State College Area School District, State College
OE No. 67–3518 Operational Project
Amount sought $50,315

Two spelling programs, each capable of being presented via computer-assisted instruction or regular classroom channels, will be prepared and administered to sixth-grade classes to determine the relative efficiencies of the approaches and the media used.

Further information: George N. Demshock, Assistant to the Superintendent for Research and Development, 131 W. Nittany Ave., State College, Pennsylvania 16801.

98. ES001418

INFORMATION RETRIEVAL SYSTEM

Calif., Beverly Hills, Unified School District
Project Number DPSC–67–3599
Amount sought $225,524
Descriptors—Audiovisual Aids, Individual Instruction, Information Retrieval, Instructional Materials Centers, Televised instruction

A centralized information retrieval system for instructional materials will be developed in three phases to provide flexible individualized instruction for a metropolitan school system. During phase one several tasks will be completed—(1) comprehensive staff training, (2) coordination of numerous community resources and talents, (3) installation of a model system connecting nine classrooms and eight learning stations to a retrieval center, and (4) development of a retrieval training laboratory for materials preparation and staff training. During the expansion phase, the central retrieval center will be connected by cable to 37 classrooms in four elementary schools. Automatic dial selection of such programed instructional media as video tapes, audio tapes, films, records, filmstrips, and slides will be made simultaneously from 40 individual stations equipped with headsets and television monitor screens. During the operational phase the system will be expanded to all public school teaching-learning stations, as well as to cooperating nonpublic schools and community cultural centers. The bulk of program origination and distribution equipment will be located at the central resource center with only a limited amount of equipment at each school location. Approximately 6,104 students will be served.

Further information: Dan M. Gibson, 255 S. Lasky Dr., Beverly Hills, California 90212. (213) 278-1480

99. ES001441

LIBERTY PROGRAM

Mass., Concord, Concord-Carlisle Regional Sch. Dist.
Project Number DPSC–67–4240
Amount sought $208,274
Descriptors—Conservation Education, Curriculum Development, Inservice Teacher Education, Instructional Improvement, Instructional Materials, Programed Instruction, Resource Centers, Special Education, Vocational Development

Five projects will be established as parts of the liberty program in a suburban area. Project No. 1 will be a conservation education program to inculcate in students a basic knowledge of the complex interrelationships between man and his biophysical environment. An adjunct curriculum materials center will provide resource and audiovisual materials

to teachers. Project No. 2 will be a computer based instructional materials development program to prepare sets of instructional materials for experimental use in the schools and to train teachers in the basic principles of computers. Project No. 3 will coordinate and strengthen special education services for handicapped children and establish demonstration classes for the emotionally and perceptually handicapped. Project No. 4 will offer an environmental immersion approach to student vocational choice and will involve tours of industrial plants, institutions, and hospitals for college and noncollege preparatory students, as well as seminars and intensive guidance. Project No. 5 will involve a center for instructional development to offer on-the-spot and continuing assistance to effect educational improvement. Approximately 37,000 public and nonpublic school students, grades 1–12, and adults will be served.

Further information: W. Robert Gaines, Stow St., Concord, Massachusetts 01742. (617) 369-9579

100. ES001447

TOTAL INFORMATION FOR EDUCATIONAL SYSTEMS

Suburban School Services Joint Board, St. Louis Park

OE No. 67-3987 Operational Project

Amount sought $274,203

Program will coordinate the development of data processing services in school systems and provide for the automatic generation of required educational data to the State Department of Education. The EDP facility will serve as a center for research and development of computer applications in educational management and instruction, as well as provide for a continuous program of inservice training for school personnel.

Further information: Harold Enestredt, Superintendent, 6425 W. 33rd Street, St. Louis Park, Minnesota 55426. (612) 929-2651

101. ES001448

USING DATA PROCESSING TO EVALUATE AND IMPROVE CLASSROOM INSTRUCTION IN SELECTED MISSISSIPPI SCHOOL DISTRICT

McComb Municipal Separate School District, McComb

OE No. 67-3527 Operational Project

Amount sought $173,767

The Southwest Mississippi Data Processing Center will be expanded to serve all interested Mississippi school districts. Rapid evaluation will be obtained by data processing of test results, grades, pupil attendance, and pupil attitudes as recorded. Through evaluation, these data will be translated into student needs. Data print out will be quickly disseminated to teachers and administrators.

Further information: J. D. Prince, Superintendent, McComb Public Schools, 647 Louisiana Avenue, McComb, Mississippi 39648. (601) 684-4661, Ext. 4

102. ES001473

DEVELOPMENT OF LEARNING RESOURCES CENTER AND TEACHER INSERVICE PROGRAMS FOR NEW TECHNOLOGY AND MEDIA

Pa., Oreland, Springfield Township School District

Project Number DPSC-67-3663

Amount sought $73,728

Descriptors—Audiovisual Aids, Computer-Assisted Instruction, Inservice Teacher Education, Instructional Materials Centers, Mass Media, Programed Materials

A learning resources and instructional materials center will be established in a suburban high school. A gymnasium will be converted into a two-floor center to accommodate recently developed technology and media. The center will house dial-access audio and video systems, closed circuit television, tape cartridges, films, and slides, and will offer programed materials, microfiche, and computer-assisted instruction. Teachers will receive intensive inservice training in application and use of new media and will be encouraged to develop packaged units of slide-tape cartridge, film loops, and video tape programs. To facilitate individual instruction, teachers will also be trained to apply concepts of programed learning and programed materials to new media such as the computer. Approximately 34,250 persons will be served.

Further information: Stephen A. Kalapas, 1091 East Paper Mill Road, Oreland, Pennsylvania 19075 (215) 233-2600

103. ES001512

SOUTH PORTLAND CURRICULUM PROJECT—USE OF A TIME-SHARED COMPUTER

Maine, South Portland, Board of Education

Project Number DPSC-67-4087

Amount sought $78,513

Descriptors—Computer Oriented Programs, Data Processing, Inservice Teacher Education, Mathematics Education, Programing, Summer Programs, Vocational Education

Computer technology will be introduced into the curriculum of a metropolitan high school, using time-shared computer services from a nearby university. Vocational training in programing and data processing for noncollege preparatory students will be stressed. Teletype terminals will be estab-

lished to enable students to benefit from a one-to-one relationship with a computer. Concurrent instruction in basic language and flow charting will be offered. Close interaction with the mathematics department will be stressed. Participating students will be chosen from the following classes—Math IV, Calculus, Matrix Algebra, General Math II, and Data Processing. An introductory 6-week summer session will be planned to accommodate 60 students. Evening and Saturday classes in computer applications will be offered as in inservice training program for 150 teachers. Even classes in data processing will be offered to adults and out-of-school youth. Approximately 434 high school students and adults will participate.

Further information: Ann Waterhouse, 78 Lamb St., Westbrook, Maine 04092. (207) 854-2072

104. ES001557

AUTOMATION FOR ISOLATED SCHOOLS

Fremont County Vocational High School, Lander

OE No. 67-2813 Planning Project

Amount sought $10,585

A complete study of a plan that will reduce the administrative bottlenecks regarding student-scheduling and recordkeeping will be made. The study phase of the project will be used to select a data processing firm that will work with the planning staff in developing a plan for automating scheduling and recordkeeping. An in-service training program will be planned, and an operational budget will be drawn up.

Further information: Dr. John W. Reng, Superintendent, 1000 Main Street, Lander, Wyoming. (307) 332-4711.

105. ES001582

SOUTH COOK COUNTY EDUCATIONAL DEVELOPMENT CENTER

South Cook County Educational Development Cooperative, Palos Hills

OE No. 67-3530 Operational Project

Amount sought $730,803

An instructional service center will serve students and teachers in 63 school districts by coordinating all programs in the area, and providing a centralized film center, diagnostic services, library resources unit, and television and radio recording facilities. Computerized instruction programs, information storage and retrieval systems, and curriculum development programs also will be provided. Inservice leadership and teacher training programs will be directed by specialists.

Further information: William O. Fisher, Superintendent of Administering District, 111th and Roberts Road, Palos Hills, Illinois 60464. (312) 448-8000 Ext. 021

106. ES001602

LABORATORY PROGRAM FOR COMPUTER-ASSISTED LEARNING

School Department of Westwood, Westwood

OE No. 67-3688 Operational Project

Amount sought $121,804

A mathematics classroom/laboratory based on the use of a time-shared digital computer as a teaching aid will be designed to improve mathematics instruction in the secondary school. This study will apply advanced computer technology plus classroom methods and materials (from the previous OE grant) to develop individualized instruction for use in both remedial and enrichment programs, and will provide for appropriate inservice teacher training.

Further information: Erwin A. Gallagher, Superintendent of Schools, High Street, Westwood, Massachusetts 02090. (617) 326-7500

107. ES001606

REGIONAL ENRICHMENT CENTER

Kalamazoo Valley Intermediate School District, Kalamazoo

OE No. 67-4241 Operational Project

Amount sought $575,000

A regional center will be established to supplement the existing educational programs of a five-county region by providing a catalog of area cultural and educational resources and demonstrating their use; continuing inservice training for teachers; an instructional materials service; and by establishing an automatic data processing center. Counties served: Kalamazoo, St. Joseph, Van Buren, Berrien, Cass.

Further information: Albert L. Bradfield, Superintendent of Schools, Kalamazoo Valley Intermediate School District, 508 East Dutton Street, Kalamazoo, Michigan 49001. (616) 342-0254.

108. ES001626

SCORE—SUPPLEMENTAL CENTERS FOR ORGANIZING REGIONAL EDUCATION

N.Y., Manhasset, U.S.F.D. 6, North Hempstead

Project Number DPSC-67-3412

Amount sought $877,310

Descriptors—Community Resources, Curriculum Development, Demonstration Programs, Educational Planning, Education Service Centers, Inservice Teacher Education, Instructional Materials

A supplementary education center will be established to implement a master plan providing services in a metropolitan county area. Functions of the center will include—(1) continued planning and research, (2) inservice education for teachers and administrators, (3) identification and

development of instructional materials, (4) prototype design and testing of the use of space, (5) development of subcenters in such areas as data automation and multimedia instructional resources, (6) curriculum development, (7) implementation of an educational research library, and (8) establishment of demonstration programs. Core staff will be concerned with planning and action functions geared to meet a variety of short-term, intermediate, and long-range concerns. Liaison staff will establish and maintain lines of communication between the center, the schools it serves, and institutions of higher education, various levels of government, educational laboratories, and industry. Operational staff will operate prototype and demonstration projects and services to specific and unique local situations and needs. Adjunct staff, specialists drawn from the academic and professional communities, will be retained on a consulting basis. All existing community resources will be involved and coordinated for optimum use. Approximately 620,514 persons will be served.

Further information: Kenneth J. Dunn, 131 Mineola Blvd., Mineola, Long Island, New York 11501. (516) 747-2082

109. ES001635

TOTAL APPLICATION OF DATA PROCESSING TECHNIQUES TO PUPIL TRANSPORTATION

Hamilton County Board of Education, Cincinnati
OE No. 67–3210 Planning Project
Amount sought $408,383

Plans will be made to develop a pupil transportation plan based on the application of data processing techniques to all areas of transportation management. The data processing system will serve 157 school districts with services designed to: avoid duplication of effort; provide for curriculum expansion; and efficiently utilize facilities.

Further information: John L. Wilson, Superintendent, 325 E. Central Parkway, Cincinnati, Ohio 45202. (513) 632-8441

110. ES001639

PROJECT TEACHER—TEACHER EDUCATION AND CHILD HELP THROUGH EDUCATIONAL RESEARCH

Ohio, Chardon, Geauga County Board of Education
Project Number DPSC–67–3257
Amount sought $183,038
Descriptors—Career Choice, Classroom Research, Computer Programs, Curriculum Development, Inservice Teacher Education, Specialists, Student Behavior, Testing Programs

Project Teacher will focus on the teacher and the classroom as the research laboratory to become an integral functioning part of the research scheme. The teachers' ability to recognize educational problems for research and to provide the data for conducting research at the classroom level will be developed through inservice training. Teachers will identify a problem as it arises in the classroom and will request a research study. Area specialists in behavior, curriculum, or guidance will provide structure design and will work with the teacher during the entire research study. Resulting recommendations for curricular change and the identification of successful student behavior patterns will provide a basis for improvement of instructional programs at the local level. Program implementation will include—(1) 3-day workshops for 100 teachers and small group sessions in special research areas, (2) classroom behavior studies focusing on the influence of environmental conditions, emotional growth, and social, physical, and intellectual development of the learning process, (3) curriculum research within the framework of the individual school, (4) initiation of a total testing program, and (5) a career guidance program involving computer matching of student traits and abilities with job requirements and skills to provide the basis for practical guidance to vocation selection. Staff and computer services for the career guidance program will be provided free of charge by a national nonprofit organization. Approximately 16,746 students will be served.

Further information: Robert D. Ishee, Courthouse, Chardon, Ohio 44024. (216) 285-2222

111. ES001641

PLANNING FOR COMPUTER INSTRUCTION

The Westlake Board of Education, Westlake
OE No. 67–3675 Planning Project
Amount sought $17,430

A date processing center to give instruction on a computer to pupils in grades 8–12, gifted elementary pupils, and adults will be planned as part of the curriculum. Inservice training for teachers will also be a feature. The center will be used in business, mathematics, and science courses to emphasize the importance of computers today.

Further information: Franklin B. Walter, Superintendent, Westlake City School District, 2282 Dover Center Road, Westlake, Ohio 44091. (216) 871-7300

112. ES001643

LORAIN COUNTY SUPPLEMENTARY EDUCATIONAL CENTER

Lorain County Board of Education, Elyria

OE No. 67–3696 Planning Project
Amount sought $53,664

A service center, staffed with personnel qualified to provide educational, resource and consultant services to 15 schools in one county, will be planned by a committee representing all the schools. A model program will be designed, using modern instructional materials and equipment in science, data processing, and communication, to provide improved services, including diagnostic and remedial, to all children and teachers in the area.

Further information: Wayne A. Whyte, Lorain County Superintendent, 420 West Third Street, Elyria, Ohio 44035. (216) 322-4924

113. ES001656

PROJECT SERVICE: A SOUTHEAST TEXAS EDUCATIONAL SERVICES CENTER

Orange Independent School District, Orange
OE No. 67–3299 Operational Project
Amount sought $217,768

A regional service center will be established to provide the following services: educational planning, curriculum development, inservice development, diagnostic aid, data processing, and instructional-materials assistance. Terminal students will be given extra attention. Curriculum specialists and data processing techniques will be employed to develop a comprehensive analysis and evaluation of each problem and expedite management functions. Forty-four school districts in eight counties will be served by the program. Counties served: Orange, Chambers, Hardin, Jasper, Jefferson, Liberty, Newton, Tyler.

Further information: M. L. Brockette, Superintendent, Orange Independent School District, 501 N. 15th Street, Orange, Texas 77630. (713) TH 3-8461

114. ES001658

PROPOSAL FOR THE PLANNING OF A COMPREHENSIVE PUPIL PERSONNEL SERVICES PROGRAM

Tex., San Antonio, North East Independ. Sch. Dist.
Project Number DPSC–67–3697
Amount sought $321,145
Descriptors—Data Processing, Dropouts, Guidance, Homebound Children, Kindergarten, Library Services, Post High School Guidance, Preschool Children, Program Planning, Resource Centers, Student Personnel Services, Teacher Aides

Student personnel services will be planned for an urban/rural area. The following need areas will be studied—(1) guidance and counseling services for 3-, 4-, and 5-year-old children and their parents, to provide early identification of problems, (2) a kindergarten program to serve as a model for the district, (3) guidance and counseling services for high school graduates, homebound pupils, and dropouts, to provide career guidance, a placement bureau, and counseling in problems of adjustment for the homebound, (4) a reading guidance program in the elementary school library, (5) a pupil research/resource center to provide audiovisual aids and programed materials to high school students pursuing programs of independent study or remedial work, (6) data processing services to provide input for curriculum improvement and to develop material for use with pupils and parents, and (7) teacher aide utilization program to determine the types of activities in which the nonprofessional can participate. Projected professional personnel needs will include—(1) a data processor and analyst, (2) an educational analyst, (3) an educational writer, (4) a school social worker, and (5) a school psychologist. Approximately 33,272 public and nonpublic school students, preschool children, high school graduates, and dropouts will be served.

Further information: Dr. James Forester, North East Independent School District, Route 13, Box 482, San Antonio, Texas 78209. (512) 655-4210

115. ES001660

ESTABLISHMENT OF A REGIONAL EDUCATION CENTER FOR CENTRAL TEXAS

Tex., Waco, Independent School District
Project Number DPSC–67–4290
Amount sought $300,000
Descriptors—Acculturation, Data Processing, Educational Research, Regional Planning, School Integration

An educational services center will be established to provide regional planning capabilities to all participating schools. Emphasis will be placed on the self-help concept—assisting schools, communities, and educators to make maximum use of existing natural and human resources. Implementation will include—(1) a six-area initiating-research program and the development of area action units, (2) a continuous action research program to provide planning information and assistance for educational decision makers, (3) a flexible program of individualized problem-solving assistance to teachers, counselors, and administrators, (4) demonstration projects utilizing data processing principles, (5) six summer institutes to develop an awareness among regional educators of the center's function and purpose and to encourage educational change, and (6) area seminars entitled "acculturation of ethnic subgroups" to aid school faculties and communities in accepting racial integration. The problems of Negro teachers in

formerly all-white schools will receive particular attention. Approximately 102,047 public and nonpublic school students will be served.

Further information: Barry B. Thompson, 3420 West Waco Dr., Waco, Texas 76703. (817) 752-8341

116. ES001667

A MULTI-DISCIPLINARY APPROACH TO IDENTIFICATION, DIAGNOSIS, AND REMEDIATION OF EDUCATIONAL DISABILITIES

Cooperative Educational Service Agency No. 10, Plymouth

OE No. 67–3228 Operational Project

Amount sought $141,886

A multi-disciplinary team, working with pediatricians, will be formed to identify and remedy educational disabilities in a tri-county area. Data processing techniques will be utilized to analyze the characteristics of the population to be served. Inservice teacher training and internship programs will also be provided. Counties served: Sheboygan, Manitowac, Calumet.

Further information: Ervin Stankevitz, Coordinator, Cooperative Educational Service Agency No. 10, 111 East Mill Street, Plymouth, Wisconsin 53073. (414) 892-4914

117. ES001693

PROBLEM SOLVING—COMPUTER STYLE

Orleans Parish School Board, New Orleans

OE No. 67–3834 Operational Project

Amount sought $173,299

A computer center will be established to enrich student learning in mathematics, chemistry, and physics. The center will also facilitate development and evaluation of new teaching media and methods in home economics, music, and the social sciences for the school district.

Further information: Carl J. Dolce, Superintendent of Schools, 703 Carondelet Street, New Orleans, Louisiana 70130. (504) 524-8592 Ext. 337

118. ES001707

THE DEVELOPMENT OF A TOTAL INFORMATION CENTER WITH AUXILIARY SERVICES TO INDEPENDENT SCHOOL DISTRICTS

Franklin County Board of Education, Columbus

OE No. 67–4053 Operational Project

Amount sought $377,749

A computer center, serving 16 school districts in the county, will be established to relieve teachers of many clerical and administrative duties and to provide administrators with the information necessary for the effective operation of schools. Student records, financial records, and inventory records will be stored and will be available to the districts via terminal lines. The possibilities for a library records system and for computer-assisted instruction will be studied. Counties served: Franklin.

Further information: Thomas J. Quick, Superintendent, Franklin County Schools, 46 E. Fulton Street, Columbus, Ohio 43215. (614) 221-1211 Ext. 415

119. ES001727

INTER-AMERICAN EDUCATIONAL CENTER

Tex., San Antonio, Independent School District

Project Number DPSC–67–4427

Amount sought $1,007,215

Descriptors—Behavioral Sciences, Computer Oriented Programs, Cross Cultural Training, Curriculum Development, Individualized Curriculum, Instructional Materials, Mexican Americans, School Designs, Self Concept, Urban Education

An individualized instructional system for nursery through elementary education will be designed for a metropolitan area with a large percentage of Mexican-American students. Four representative elementary schools will be designed as satellite schools of tomorrow. Modular activity packages will be developed to provide individually prescribed instruction for Mexican-American and Anglo students. Flexible organizational patterns will be designed. A human theory management system/structure for interpersonal relations will be instituted, consistent with modern theory and research in the behavioral sciences. Creative applications of computer technology for educational data processing will be studied. A comprehensive system for client-controlled retrieval of instructional materials will be established. A basic architectural design for flexible school facilities will be developed. Project staff will assure that the comprehensive organic system is thoroughly cross cultural in emphasis. Extensive cooperation with other Title III centers and Title IV Regional Laboratories will be planned. The program will be focused upon the development of a healthy self-concept among all students, and particularly among Mexican-American children. Approximately 211,963 students will be served.

Further information: Dr. Dwain M. Estes, 2525 Tower Life Bldg., San Antonio, Texas 78205. (512) 225-3021

120. ES001751

ESTABLISHING A COMPREHENSIVE, PREVENTIVE LEARNING DISABILITIES AND MENTAL HEALTH PROGRAM

Alfred I. DuPont School District, Wilmington

OE No. 67–3567 Operational Project

Amount sought $83,488

A program to eliminate school failure will be established by identifying special needs of students and providing consultation and supervision, with a data processing system for research and control. A flexible curriculum precisely geared to the individual's stage of development will make education in this city school district more responsive to the individual child.

Further information: Carroll W. Biggs, Chief School Officer, Concord Pike at Mt. Lebanon Rd., Wilmington, Delaware 19803. (302) 475-1500

121. ES001754

DOD DEPENDENTS SCHOOLS COMPUTER-ASSISTED INSTRUCTION

PACAF Headquarters (DPD) Dependents School, Honolulu

OE No. 67-4462 Planning Project

Amount sought $85,150

Operational CAI (Computer Assisted Instruction) designs will be developed for use throughout the school system, through a program of school-needs and available equipment study experimental design, and operational design. This will result in the founding of a structured CAI science, documented by reports and how-to-do-it manuals for use by all school systems in the United States.

Further information: Richard Meyering, Acting Superintendent Hickam Field APO 96553SF, Honolulu.

122. ES001785

COMPUTER-ASSISTED INSTRUCTION IN MATHEMATICS

McComb Municipal Separate School District, McComb

OE No. 67-4721 Operational Project

Amount sought $421,725

An experimental mathematics program, using computer-assisted instruction, will be tested in school districts where such a program has not previously been used in public schools. Attempts will be made to determine the adaptability of the program to various types of student populations and to determine methods of gaining acceptance from the faculty. Counties served: South Pike, Franklin.

Further information: J. D. Prince, Superintendent. McComb Municipal Separate School District, 695 Minnesota Avenue, McComb, Mississippi 39648. (601) 684-4661

123. ES001790

PROJECT TO PROVIDE NEW MOTIVATION FOR READING THROUGH LIBRARY SERVICES IN OVERCROWDED ELEMENTARY SCHOOLS

Mo., St. Louis, City Board of Education

Project Number DPSC-67-3076

Amount sought $639,529

Descriptors—Decentralized Library Systems, Disadvantaged Youth, Inner City, Librarians, Mobile Educational Services, Reading Interests, Student Motivation, Volunteers

Library services will be offered to disadvantaged elementary school children in 10 overcrowded inner-city schools with no space available for a traditional library. The school library collection will be located in empty storage rooms and displayed at ends of corridors. Volunteers will be engaged to bring books at the proper reading difficulty/interest level to each classroom on a cart. The volunteers will confer frequently with students and teachers to develop an intimate knowledge of each student's reading interests. Three itinerant librarians will each be assigned to two or three schools, clerks will be employed to maintain the collections and order materials, a central library services center will be established to house a core collection of general reference works and special bibliographic materials, facilities will be provided for the technical processing of books, so that completely processed library books will be delivered to the schools. An electronic data processing program will be established to provide uniformity and consistency in materials classification. A union list will be maintained. A model elementary library will be set up to enable volunteers and teachers to observe library services and participate in library activities. Areas will be provided for story telling and oral reading. Inservice and preservice training will be offered. Approximately 9,000 public and nonpublic school students, Grades K-6, will be served.

Further information: Conrad Eriksen, Jr., Harris Teachers College, 3026 Laclede Ave., St. Louis, Missouri 63103. (314) 531-7390

124. ES001794

ASSISTANCE IN DECISION MAKING THROUGH RETRIEVAL IN EDUCATION

School District of the City of Lincoln, Nebraska

OE No. 67-3593 Operational Project

Amount sought $150,610

A computer and data processing center will be established for a five-county area to improve educational decisionmaking. The facilities will be used to collect, correlate, and analyze information from all schools in the area and make this information available to all teachers and administrators.

Further information: Mrs. Anne Campbell, Administrative Assistant to Government Services, P.O. Box 200, Lincoln, Nebraska 68501. (402) 475-1081

125. ES001795
AIMS—ACCESS TO INSTRUCTIONAL MATERIALS AND SERVICES
School District of the City of Omaha
OE No. 67–3971 Operational Project
Amount sought $89,999

A dial access retrieval system, linked to existing computer facilities, will be planned and operated on a pilot basis in one school. Inservice training will be provided for teachers who will participate in planning, establishing, and operating the facility. Counties served: Douglas.

Further information: Owen A. Knutzen, Acting Superintendent, School District of the City of Omaha, 3902 Davenport Street, Omaha, Nebraska 68131. (402) 556-6600

126. ES001807
LEA COUNTY DATA PROCESSING CENTER
Hobbs Municipal Schools, Hobbs
OE No. 67–3592 Operational Project
Amount sought $103,613

A data-processing center having facilities for teaching computer application to mathematics, science, and business will be established. Specific occupational instruction in data processing, programing languages and electronic storage of data will be offered. The center will also handle the school administrative work of payroll, attendance, grade cards, health records, and test scoring. It will serve five school districts.

Further information: R. N. Tydings, Superintendent of Schools, Box 1040, Hobbs, New Mexico. (505) 393-9183

127. ES001821
COMPUTER INSTRUCTION NETWORK
Marion County I.E.D., Salem
OE No. 67–4286 Operational Project
Amount sought $201,941

Every high school student in six districts will be instructed in the use of representative types of computer equipment. The program will provide instruction, understanding, and training in basic computer concepts, effects of automation on society, and problem solving. Inservice training will be given for the study of the functioning of the computer.

Further information: Mr. Merlin L. Morey, County School Superintendent, 681 Center Street, N.E., Salem, Oregon 97301. (503) 585-6210

128. ES001828
REGIONAL SUPPLEMENTARY SERVICES CENTER (TITLE SUPPLIED).
Pa., West Chester, Chester County Bd. of Sch. Dir.
Project Number DPSC–67–3673
Amount sought $224,098
Descriptors—Curriculum Development, Inservice Teacher Education, Instructional Materials Centers, Regional Planning

Regional planning for a suburban area will be continued and test projects established in the areas of—(1) curriculum development, (2) inservice education, and (3) instructional materials. An area center will be planned for supplementary curricular services, and county superintendent offices will be converted to intermediate units. An assistant director of curriculum development services will be employed, and three curriculum specialists added in ensuing years. The specialists will begin to organize resource centers in their fields, cooperating with a developing data processing center in the two-county area, and will become consultants to local districts in curriculum development. Inservice programs will be designed to support the curriculum study as outlined above. The inservice programs will include summer retreats, released time during the school day, workshop days, and luncheon and dinner workshops. An extensive study will be made on the instructional materials programs of all schools. Emphasis will be placed upon —(1) organizing a system of learning resources available to all schools, (2) establishing physical facilities for housing these learning resources and services, and (3) planning staff, equipment, and material needs for a learning resources center. Approximately 218,377 public and nonpublic school students, grades K–12, will be served.

Further information: Stanley K. Landis, County Superintendent, County Office Bldg., Market and New Sts., West Chester, Pennsylvania 19380. (215) 696-0501

129. ES001832
PLANNING FOR INNOVATION IN SOUTH CAROLINA–REGION FOUR
Project Number DPSC–67–3072
Amount sought $191,520
Descriptors—Educational Change, Regional Planning

Regional planning for educational change will be initiated in a predominantly rural six-county area. Emphasis will be placed on the application of ideas and research findings gathered on a nationwide basis to area schools. New approaches will be sought and tested through experimental programs and through the interchange of ideas. The planning team will be responsible for—(1) assessment of specific needs and resources, (2) design, implementation, and validation of new instructional systems, and (3) such supportive services as consultant assistance and guidance to local districts and the correlation of all proposed district

and regional activities. Regional team activities will be coordinated with those of similar teams in the other five state regions, with educational laboratories, and with the state's department of education. Regionwide studies will be conducted by means of conferences, interviews, surveys, visitations, and questionnaires. Consideration will be given to inservice training, educational TV, data processing, psychoeducational and guidance clinics, arts centers, year-round use of school facilities, use of community resources, and other areas. A series of interrelated projects will be developed to phase into a regional special services center, at which time the planning team will be absorbed into the operational program of the center. Approximately 135,000 persons will be served.

Further information: J. G. McCracken, Superintendent of Schools, 400 South Church St., Spartanburg, South Carolina 29303. (803) 583-3786

130. ES001835

EXEMPLARY JUNIOR HIGH SCHOOL

Tex., San Angelo, Independent School District

Project Number DPSC–67–3399

Amount sought $376,736

Descriptors—Flexible Scheduling, Grouping (Instructional Purposes). Independent Study, Learning Laboratories, Resource Centers, School Design, Team Teaching

A demonstration junior high school will be established in a metropolitan area. A new building will be constructed to demonstrate flexible planning opportunities for groups of all sizes. Approximately one-third of the school population will consist of minority group children with low socioeconomic background, one-third middle class background, and one-third upper class socioeconomic level. Teaching teams will be organized in each subject area, and each team will have an assigned team chairman. Four types of instruction will be offered—large group, small group, independent study, and special laboratory instruction, using music practice rooms, a language laboratory, a science research laboratory, and a vocational shop. Flexible scheduling will be implemented through a daily demand schedule, so that teachers will be able to control time schedules. The role of the paraprofessional will be expanded. A learning mall/resource center will be created and will remain open for individual study after school and during the summer. The resource center will include audio notebooks, microfilm readers, daily demand schedule packages, a language laboratory, 8MM film loops, previewers, tape recorders, controlled readers, electric calculating machines, a digital computer kit, a lapidary shop, plant growth chambers, and various programed instructional materials. Approximately 900 public school students, grades 7–9, will be served.

Further information: John L. Givens, 244 N. Magdalen, San Antonio, Texas 76901. (915) 655-5741

131. ES001837

EDUCATIONAL PLANNING, REGION I, TO ESTABLISH SERVICE AND REGIONAL MEDIA CENTER

Edinburg Consolidated Independent School District, Edinburg

OE No. 67–3550 Planning Project

Amount sought $162,829

An education and educational media service center will be planned. The center is to provide inservice education, pupil-diagnostic services, enrichment programs, administrative services such as data processing and cooperative purchasing, and audiovisual aids. Better and more coordinated educational planning and improved training are expected as a result of the center. The service will be provided for seven counties. Forty-eight school districts will participate in the planned program.

Further information: T. S. Pickens, Superintendent, 101 N. 8th Street, Edinburg, Texas 78539. (512) DU 3-4951

132. ES001838

CREATIVE APPLICATION OF TECHNOLOGY TO EDUCATION (CATE)

Tex., College Station, A/M Cons. Indep. Sch. Dist.

Project Number DPSC 67–3595

Amount sought $430,187

Descriptors—Group Instruction, Individual Instruction, Information Retrieval, Inservice Teacher Education, Instructional Technology, Instructional Television, Mobile Educational Services, Resource Units, Video Tape Recordings

The Cate Dial-Access audiovisual retrieval network will bring supplementary course presentations, designed to maximize group learning in the classroom and release the teacher to work more effectively with individual students for review. Specific curriculum elements (software) for elementary, junior high, and senior high school levels will be developed, tested and revised, using such techniques as moving and still visuals for TV, audio, and active involvement of the learner where appropriate to meet learning objectives. Most of the units will be prepared by master teachers in a 12 week summer workshop and field tested, using a simulated network in selected schools with educationally disadvantaged students. Within the simulated network, the recorded lessons will be taken to each school by truck, rather than being transmitted electronically from a central source. Videotape recorders will be used to run the videotapes.

Concurrently, a communication network system and effective hardware for mass distribution of the materials will be designed and developed for full operation of the program in all area schools. Inservice training will be conducted in the use of the software and other services offered by the Cate regional center, and a mobile inservice training and instructional service unit will bring demonstrations to the schools. Approximately 161,600 students in a 31-county area will participate in field testing the program.

Further information: Donald K. Stewart, P.O. Box 3008, College Station, Texas 77840. (713) 846-3784

133. ES001855

FLEXIBLE EDUCATIONAL PARK PLANNING FORMATS

The District of Columbia Public Schools, Washington, D.C.

OE NO., 67–2879 Operational Project
Amount sought $49,235

A study will be made to determine the type of educational park best suited to the needs of the area. Educational-community service specifications will be established to guide architectural planning and a PERT computerized educational park planning program will be developed.

Further information: Joseph M. Carroll, Assistant Superintendent, Department of Research, Budget and Legislation, Franklin Administration Building, 13th and K Streets, N.W., Washington, D.C. 20005.

134. ES001857

IMPROVED EDUCATIONAL SERVICES AND PRACTICES THROUGH UTILIZATION OF ELECTRONIC RECORDS

Dade County Board of Public Instruction, Miami
OE No. 67–4355 Operational Project
Amount sought $625,748

A multi-county attack is planned to remedy the lack of accurate, timely, and complete information on students and to make information available on educational advisement. These problems will be attacked by implementing improved educational services and practices, including the production of an electronic student information record with a uniform data coding system and effectively utilizing the student data by setting up an automatic referral system with analysis based on predetermined criteria. Four school districts will be served by the program.

Further information: Dr. Joe Hall, Superintendent of Schools, 1410 N.E. 2nd Avenue, Miami, Florida 33132. (305) 377-4311

135. ES001858

NINTH DISTRICT EDUCATIONAL SERVICES CENTER

Ga., Cleveland, White County Board of Education
Project Number DPSC–67–4101
Amount sought $1,094,400
Descriptors—Counseling, Curriculum Development, Data Processing, Education Service Centers, Faculty Recruitment, Health Programs, Instructional Materials Centers, Leadership, Psychoeducational Clinics, School Maintenance, School Services, Specialists, Student Personnel Services

A multipurpose center will be established and operated to provide educational leadership and services to 29 small school systems in a predominantly rural area. Leadership will be provided in curriculum and instruction, pupil personnel services, and school business services. Curriculum specialists will be employed in the areas of school subjects, kindergarten education, reading, adult education, exceptional children, and independent study. Test projects in high school reorganization and cultural enrichment will be undertaken. An educational media center will be developed to provide a variety of consultive, media loan and repair, and centralized processing services. Student personnel services will involve leadership in elementary and high school counseling, school social work, group testing, and school health. The services of a psychological clinic will be provided. School business services will involve leadership and services for districtwide personnel recruitment, purchasing, data processing, and the maintenance and operation of buildings and grounds. Districtwide task forces of school personnel will work with center staff to plan and follow through with each leadership and service program. Independent evaluation and disemination units will provide management feedback and control. Approximately 90,000 students will be served.

Further information: Joe E. Kirby, Superintendent, Barrow County School District, P.O. Box 767, Winder, Georgia 30680. (404) 867-3044

136. ES001879

COMPUTER-BASED TEST DEVELOPMENT CENTER

Multinomah County Intermediate Educational District, Portland
OE No. 67–4213 Operational Project
Amount sought $95,047

A test development service will be operated in 17 school districts to provide teachers, administrators, and special project personnel with well-validated achievement tests designed for specific purposes and specific learner groups, e.g., high school

science tests with norms appropriate to the school system. This service will be part of an evolving system which will lead to computer-assisted instruction.

Further information: Errol C. Rees, Superintendent, P.O. Box 9172, Portland, Oregon 97216. (503) 255-1841

137. ES001891

EASTERN ILLINOIS DEVELOPMENT AND SERVICE UNIT

Ill, Charleston, Community Unit School District One

Project Number DPSC 67-3344

Amount sought $865,789

Descriptors—Demonstration Projects, Educational Change, Films, Gifted, Information Networks, Inservice Teacher Education, Instructional Materials Centers, Learning Readiness, Preschool Programs, Regional Programs, Special Education, Vocational Education.

Regional Center services will be continued and expanded to expedite positive educational change in a rural 10-County area. Operational program components will include—(1) Special services for handicapped children, (2) A curriculum branch, (3) A development branch, and (4) Supporting services. The following projects and activities will be focused on—(1) development of a receptive attitude toward change among member schools, (2) continuation of needs assessment activities, (3) integrated development of new programs to facilitate curricular change and modification through the adaptation and application of multimedia services and modern technological developments, (4) effective use and coordination of existing resources, (5) continued coordination and development of existing projects in special education services, preschool programs, learning readiness, vocational education, gifted programs, film library expansion, administrative services, and inservice training, (6) development of a systematic learning and communication network with data processing facilities, and (7) determination of research and evaluation procedures for all phases of the program. A multimedia learning materials and resources service center with graphics production services will be developed to serve teachers, schools, libraries, and planning groups. Approximately 37,212 students will be served.

Further information: Dr. Gail Richardson, 406 Johnson Street, Charleston, Illinois 61920 (214) 345-2015

138. ES001894

WABASH VALLEY EDUCATION CENTER

Ind., West Lafayette, Community School Corp.

Project Number DPSC-67-3337

Amount sought $1,670,313

Descriptors—Audiovisual Aids, Cultural Enrichment, Curriculum Development, Educational Television, Elementary School Science, Experimental Curriculum, Instructional Materials Centers, Physics, Programed Materials, Regional Cooperation, Social Studies, Video Tape Recordings

A regional Education Center will be established to bridge the gap between educational research and practice. Emphasis will be placed on overall curriculum development, supported by a comprehensive materials center and facilitated by an effective system of communications. An 8-pronged program will be planned. Audiotaped programed instruction will be developed for the teaching of elementary school science. The programed instruction will be supplemented with reading materials, discovery activities, and teacher directed activities. Audiotaped programed instruction will also be developed to teach high school physics in conjunction with standard texts and laboratory manuals. PSSC Physics printed materials will also be used. A new social studies curriculum will be designed. Sixty teachers will be selected to participate in pilot programs, and 15 teachers will be chosen as members of an analysis task force, An integrated language program will be introduced to assist students in improving their basic communications skills. An instructional resource center will be established. Cultural enrichment will be offered through the expansion of existing programs in art and music. Exploratory programs in the areas of vocational education, nongraded schools, foreign language instruction, data processing to solve scheduling and transportation problems and the central processing of materials will be field tested. Expanded use of educational television and video tapes will be planned. Approximately 67,800 students will be served.

Further information: Harry O. Leader, 1220 Potter Dr., Suite B. West Lafayette, Indiana 47906 (317) 743-9707

139. ES001905

FRANKLIN COUNTY PILOT STUDIES PROGRAM

Mass., Greenfield Public Schools

Project Number DPSC-67-3340

Amount sought $214,049

Descriptors—Cultural Enrichment, Curriculum Development, Dyslexia, Emotionally Disturbed, Physical Fitness, Regional Cooperation

A center for regional cooperation and sharing of services will be established in a rural area. Four test projects will be implemented—(1) a study program for behavioral studies, (2) a Study pro-

gram for curriculum development, (3) a study program for creative arts, and (4) a study program for athletics and recreation. A transitional first grade for potential dyslexics will be established to offer training in phonics and eye-hand coordination in addition to regular studies. Two classes for emotionally disturbed children will be set up, and a team of specialist will be brought directly into schools where problems exist. An orientation workshop for curriculum development will be organized and test models developed in the following areas—(1) computer-assisted instruction, (2) programed instruction, (3) ungraded instruction, (4) team teaching, and (5) an educational television demonstration unit. A cooperation instructional materials production section will be established. The creative arts program will include—(1) children's concerts, (2) arts exhibitions and classes, (3) children's theater, and (4) field trips to museums, art galleries, and concerts for athletic training. Existing facilities will be used to offer instructional programs for camp counselors, life guards, and playground leaders. A leadership training course for students will be organized using the facilities of a local summer camp during the month of June. Clinics designed to develop skills in sports will be organized and staffed by personnel from nearby colleges. Approximately 16,071 students, Grades K–12 will be served.

Further information: William A. Small, 125 Federal St., Greenfield, Massachusetts 01301 (413) 774-4378

140. ES001917

PLANNING AND PILOT IMPLEMENTATION OF A COMPUTER-BASED INSTRUCTIONAL SYSTEM

Board of Education of the City of New York, Brooklyn

OE No. 67–3362 Operational Project

Amount sought $1,855,107

A computer based instructional system will be planned and operated to serve elementary school groups, remedial high school, and adult groups. The individual drill and practice curriculum developed at Stanford will be used for mathematics, spelling and reading in five counties of a depressed urban area. Two hundred classrooms in sixteen schools will be equipped with student terminals. Menial chores will be reduced and personalized instruction will be given as needed.

Further information: Dr. Bernard E. Donovan, Superintendent, 110 Livingston Street, Brooklyn, New York 11201. (212) 596-6161

141. ES001924

COMPACT TO PROMOTE AND IMPLEMENT CURRICULAR AND SCHEDULING INNOVATIONS IN SECONDARY SCHOOLS

Oreg., Salem, Marion County Interim Educ. Dist.

Project Number DPSC–67–3347

Amount sought $150,000

Descriptors—Data Processing, Educational Change, Information Dissemination, Inservice Teacher Education, Regional Cooperation, Teacher Workshops

An education service center will be established to facilitate educational change in 44 cooperating school districts. Extensive inservice training and consultant services will be provided to teachers on a statewide, regional, and local basis. Center staff will tabulate services requested by the schools, determine the number and type of consultants needed, and set up needed inservice programs. Key personnel from each school will attend an innovative practices conference each summer and will return to their local districts to act as change agents. Summer workshops will be held on such subjects as small group procedures and techniques. The center will assist in the transfer of the Stanford School Scheduling System (Quad S) to State data processing equipment. The computer program will be designed to generate and load a master schedule for schools, using a modular and/or flexible design. An IBM 360, model 50 computer will be installed at the State university. The university computing center and the school of education will make available educational and computing experts who will work with school districts to establish complete data processing services. The center will also serve as a clearinghouse, and the center staff will be involved with constant visitations to member schools. Approximately 86,060 students, Grades 7–12, will be served.

Further information: Ray L. Talbert, 681 Center St., N.E. Salem, Oregon 97301. (503) 585-6210

142. ES001926

INTENSE—INTERRELATED THRUSTS TO ENRICH SCHOOLS' EFFECTIVENESS

Pa., Bellefonte, Centre County Board of Education

Project Number DPSC–67–3336

Amount sought $1,116,672

Descriptors—Cultural Enrichment, Curriculum Enrichment, Data Processing, Program Evaluation, Regional Cooperation

A four-pronged program of educational change will be introduced in a rural area. Basic services will include—(1) data processing, (2) cultural enrichment, (3) curriculum enrichment, and (4) evaluation. A central planning agency will be established to maintain overall coordination and to

identify human and material resources and programs. Interested school districts will be asked to formally contract with the center for such designated data processing services as attendance, pupil placement and scheduling lists, grade reporting, bus routing, test scoring, bookkeeping, and special guidance applications. The cultural enrichment program will be aligned with the State fine arts program and will stress student participation. A painter, a sculptor, a potter, a smith, and/or a printmaker will be assigned to each of the elementary schools for a 4-day period as an artist-in-residence. A revolving art exhibit will be established. A curriculum change project, featuring a 2-week workshop for teachers at a nearby university, will be instituted to form a basic pattern and structure for change. A test project, "Oral Communications Development," will be implemented to improve communication skills. A mathematics information system (MIS) will be introduced to offer assistance to the districts in the selection, instruction, and implementation of mathematical information. The evaluation component of the center will direct formal and informal sessions on research design and implementation and will assemble a library of appropriate instruments and surveys. Approximately 79,946 students, Grades K–12, will be served.

Further information: Dr. Francis J. Pilecki, Lock Haven State College, Lock Haven, Pennsylvania 17745. (717) 748-3465

143. ES001939
DATA PROCESSING INSTRUCTION CENTER
School District #5, Franklin, Wisconsin
OE No. 67–3353 Operational Project
Amount sought $345,361

A data processing instruction center will be developed for a three-county area for teaching data processing to students of both public and nonpublic schools. Specially trained instructors will work with each local staff to teach the basic philosophies and concepts of data processing, develop curriculums, and utilize a team teaching approach at participating schools.

Further information: H. E. Guzniczak, Superintendent of Schools, 7380 South North Cape Road (P.O. Box 245), Franklin, Wisconsin 53131. (414) 425-2554

144. ES001943
COMPUTER-BASED COURSE SELECTION PROGRAM
Palo Alto Unified School District, Palo Alto
OE No. 67–4391 Operational Project
Amount sought $52,719

High school students numbering over 7,500 will select courses via an information system that will furnish requirements and specifications including college types, grades, vocational choices, and complete course descriptions. The information given to the students will allow them to make choices which can be electronically processed, permitting better and speedier scheduling.

Further information: Murray Tondow, Director, Educational Data Services, 25 Churchill Street, Palo Alto, California 94306. (415) 327-7100 Ext. 4261

145. ES001949
MULTI-MEDIA COURSE MODEL APPLIED TO SECONDARY EDUCATION
Board of Education of Anne Arundel County, Annapolis
OE No. 67–4342 Operational Project
Amount sought $927,266

A model secondary level curriculum, emphasizing a multi-media, computer-controlled approach, will be designed for schools in the district. The model will be tested and used as a basis for complete revision of the secondary school curriculum. Objectives of the program are to use modern educational technology and results of learning-process research in designing the model. Counties served: Anne Arundel

Further information: Davis S. Jenkins, Superintendent, Board of Education Anne Arundel County, Box 951, Annapolis, Maryland 21404. (301) 268-3345

146. ES001951
SUPPLEMENTARY RESEARCH AND TECHNICAL SKILLS TRAINING CENTER
Mass., Dracut Public Schools
Project Number DPSC–67–4341
Amount sought $209,930
Descriptors—Computer-Assisted Instruction, Concept Teaching, Interdisciplinary Approach, Job Skills, Technical Education

A technical skills-oriented curriculum will be introduced within the existing framework of a comprehensive high school. Curriculum, teaching aids, techniques, and technological devices, evolved during previous planning and employing an inter-disciplinary-conceptual approach, will be implemented and evaluated in an experientially-based learning program. Abstract verbal principles will be acquired through such nonverbal stimuli as seeing, feeling, and manipulating, enabling the students to learn and demonstrate learning in nonverbal ways. During the first year, a 5-week summer program and a winter extended-day and Saturday morning program will be offered to a heterogeneous group of 125 entering ninth graders. Small group instruction will be provided by academic

and shop teachers in graphic communications, electronics and instrumentation, mechanics, structures and fabrication, and materials in industry. Practice teachers will participate in the summer program to school them for further program participation. Continuing research and development will be conducted on curriculum aids and materials for chemical and medical technology, plastics, and other areas. In cooperation with local industry, the use of a computer programed for teaching typewriting will be field tested and evaluated for future extension into computerizing technical courses in mechanical drawing, spatial relations, and visualization. Daily evaluation will be made in the prototype projects of curriculum, techniques, aids, materials, students, and faculty for operational expansion of the program in future years.

Further information: George James, 1105 D Lakeview Ave., Dracut, Massachusetts 01826. (617) 454-2241

147. ES001953

INDICOM—"INDIVIDUAL COMMUNICATIONS SYSTEM"

Saginaw Township Community Schools
OE No. 67–4301 Operational Project
Amount sought $750,358
Computer-assisted instruction will be implemented in the teaching of mathematics and spelling in grades 3–6 in one school district. The programs to be used will be transmitted from a central computer to classrooms in several schools, and will utilize diagnostic, branching, and sequencing at five levels of difficulty.

Further information: A. Mills Wilber, Superintendent of Schools, 5685 Shattuck Road, Saginaw, Michigan 48623. (517) 792-8771

148. ES001962

EDUCATIONAL PLANNING, REGION XX, TO ESTABLISH SERVICE AND REGIONAL MEDIA CENTERS

Tex., San Antonio, Independent School District
Project Number DPSC–67–4115
$155,063
Descriptors—Educational Planning, Instructional Materials Centers, Regional Programs

An educational services and media center will be planned to serve a 13-county regional area. The center will—(1) initiate long-range planning based on an extensive study of regional needs and resources, (2) determine priorities for the types of instructional media services needed based on a regional survey of human resources and an inventory of instructional media capabilities, and (3) study alternate ways of producing and distributing instructional materials. A continuing study of regional needs and resources will be maintained. Based on the study, such educational services as in-service education, diagnostic services, enrichment programs, and data processing will be planned. The regional center will coordinate its planning and services with other regional centers in a statewide program designed to bring the benefits of regional center activities to all school districts in the State. Approximately 230,620 students will be served.

Further information: Dwain M. Estes, 2525 Tower Life Building, San Antonio, Texas 78205. (512) 225-3025

149. ES001963

EDUCATIONAL PLANNING REGION 14 (TO ESTABLISH EDUCATIONAL SERVICE AND REGIONAL MEDIA CENTERS)

Tex., Abilene, Independent School District
Project Number DPSC–67–4321
Amount sought $156,329
Descriptors—Educational Planning, Instructional Materials Centers, Regional Programs

An educational services and media center will be planned to serve a 13-county regional area. The center will—(1) initiate long-range planning, based on an extensive study of regional needs and resources, (2) determine priorities for the types of instructional media services needed, based on a regional survey of human resources and an inventory of instructional media capabilities, and (3) study alternate ways of producing and distributing instructional materials. A continuing study of regional needs and resources will be maintained. Based on the study, such educational services as in-service education, diagnostic services, enrichment programs, and data processing will be planned. The regional center will coordinate its planning and services with other regional centers in a statewide program designed to bring the benefits of the regional centers activities to all the State's school districts. Approximately 48,505 students, grades 1–12 will be served.

Further information: A. E. Wells, Superintendent, 842 North Mockingbird, Abilene, Texas 79603 (915) 674-1444

150. ES001964

EDUCATIONAL PLANNING FOR REGION XII TO ESTABLISH EDUCATIONAL SERVICE REGIONAL AND MEDIA CENTERS

Tex., Waco, Independent School District
Project Number DPSC–67–4337
Amount sought $207,945
Descriptors—Educational Planning, Instructional Materials Centers, Regional Programs

An educational services and media center will be planned to serve a 12-county regional area. The

center will—(1) initiate long-range planning, based on an extensive study of regional needs and resources, (2) determine priorities for the types of instructional media services needed, based on a regional survey of human resources and an inventory of instructional media capabilities, and (3) study alternate ways of producing and distributing instructional materials. A continuing study of regional needs and resources will be maintained. Based on the study, such educational services as inservice education, diagnostic services, enrichment programs, and data processing will be planned. The regional center will coordinate its planning and services with other regional centers in a statewide program designed to bring the benefits of the regional centers activities to all the State's school districts. Approximately 102,047 students will be served.

Further information: Barry B. Thompson, 3420 West Waco Dr., Waco, Texas 76710. (817) 752-8341

151. ES001967

PROGRAM TO PROVIDE PSYCHOLOGICAL AND SOCIAL WORK SERVICES TO RURAL SCHOOL DISTRICTS

Utah, Price, Carbon County School District

Project Number DPSC–67–4451

Amount sought $170,396

Descriptors—Inservice Teacher Education, Mental Health Programs, Occupational Information, Psychological Services, Regional Programs, Rural Youth, Social Work, Student Personnel Services, Urbanization

Interdistrict psychological and social work services will be provided by a Regional Child Study Service (RCSS) to students in a sparsely populated rural five-county area. Emphasis will be placed on—(1) professional evaluation, recommendation, referral, and treatment for problem cases in the schools, (2) upgrading of the mental health climate in school and home, (3) coordination of the efforts of professional service agencies in the area, (4) development of an automated recordkeeping system, and (5) enhancement of the ability of rural students to adapt socially and vocationally in nonrural settings. The RCSS will be organized to work cooperatively with District Pupil Personnel Divisions and with elementary and secondary programs in the schools. Inservice training consultants will work closely with elementary teachers to help them understand their students and identify those with psychosocioeducational problems. Group and individual therapy will be provided where appropriate, and arrangements will be made for such environmental modifications as placing the child in the boy scouts, the 4-H, or a foster home. Mental health climates should be upgraded by inservice teacher training, special parent workshops, and conferences. Occupational data for teachers, career day programs, and other techniques will be introduced to familiarize rural youth with the opportunities, problems, and adjustment involved in transition to an urban environment. Approximately 6,883 students will be served.

Further information: Jay K. Donaldson, 333 East 1st South, Price, Utah 84501. (801) 637-1734

152. ES001991

SPACE SCIENCE LEARNING PROGRAM

Calif., Newport Beach, Newport-Mesa Unif. Sch. Dist.

Project Number DPSC–68–5550

Amount sought $144,762

Descriptors—Aerospace Technology, Mathematics, School Industry Relationship, Science Course Improvement Project, Science Teaching Centers

A space science learning program for grades K-12 will be established in an aerospace-oriented community. Emphasis will be placed upon—(1) improving the science curriculum of Grades K-12 through the implementation of specialized programs, (2) enriching mathematics offerings for students, grades 1–12, through the introduction of new course materials, and (3) utilizing human resources in the community. The specialized programs will include—(1) earth-space computer science for junior high, (2) physics/space-age applications, (3) chemistry/space-age applications, (4) biology/space-age applications, (5) electronics in the space age, (6) navigation, (7) earth science, (8) computer programing in high school, (9) the space sciences in mathematics for high school, (10) inner space-marine biology in high school, (11) implications of space science exploration and technology, and (12) space science in the elementary school, grades 1–4. Concurrently, a science teaching center will be established to—(1) implement summer science seminars for students, grades 6–12, (2) conduct teachers evaluation seminars, (3) activate the district spacemobile, (4) establish an information retrieval system for the space science library, and (5) develop short courses for teachers. An eyeball-to-eyeball program will be established to bring scientists and engineers from nearby aerospace industries into contact with science teachers and students so that new information and techniques will be constantly introduced into the schools science programs. Approximately 372,651 students, grades K–12, will be served.

Further information: Mrs. Fay Harbison, 1601 Sixteenth Street, Newport Beach, California 92660. (714) 646-3224

153. ES002021
TRAINING IN COMPUTER USE IN HIGH SCHOOLS FOR INCREASING THE RANGE AND DEPTH IN MATHEMATICAL SKILLS AND CONCEPTS
Tex., Dallas, Independent School District
Project Number DPSC–68–5720
Amount sought $62,146
Descriptors—After School Education, Calculus, Computers, Mathematical Enrichment, Programing

Two courses in computer programing will be offered to high school students in an urban area. In the first course, complementary computer instruction will be introduced in the analytics and calculus classes of 10 high schools. Students will be able to enlarge their mathematical capabilities by programing the computer for solution of problems associated with their science and mathematics classes. The Basic and Fortran languages will be stressed. Although students will be encouraged to experiment with other languages, such as Algol, each studest will be free to progress at his individual learning rate. The second course will be an after-school program to provide an introductory knowledge of computer programing for students not enrolled in calculus classes. Instruction will include—(1) Basic and Fortran languages, (2) computer logic, (3) computer numeration systems, (4) flow charts, and (5) problem solving. The problems for programing in the after-school course will be mathematics, science, and social studies-oriented. Approximately 1,390 students, grades 10–12, will be served.

Further information: Joseph J. Lancaster, 3700 Ross Ave., Dallas, Texas 75204. (214) 824-1620

154. ES002043
EDTECH (EDUCATIONAL DEVELOPMENT THROUGH TECHNOLOGY)
Dover Special School District, Dover
OE No. 68–5153 Operational Project
Amount sought $224,674

Education will be improved through utilization of a statewide network of educational technology. Computer programs will provide administrative and instructional services; teachers and pupils will be trained to use the computer as a mathematical training tool; cooperative training for school agencies and teachers will be established; and the use of computers as aids for counseling and guidance, games and simulations, testing and analysis, and curriculum assessment will be evaluated. Counties served: Kent, New Castle, Sussex.

Further information: Dustin W. Wilson, Jr., Superintendent, 945 Forrest Street, Dover, Delaware 19901. (302) 734-4104

155. ES002057
PROJECT SPOKE.
Mass., Foxborough, Public Schools
Project Number DPSC–68–5391
Amount sought $511,841
Descriptors—Colonial History (United States), Community Resources, Data Processing, Films, Instructional Materials, Library Services, Resource Centers

A resource center (SPOKE) will be established to serve six surburban communities. Emphasis will be placed upon acquainting teachers, administrators, and supervisory personnel with new instructional resources and techniques which should increase their knowledge and broaden their interests and should develop more positive attitudes toward learning and the learner. Orientation sessions will be conducted for educational and community leaders to establish lines of communication. A professional resource library will be created and equipped with all pertinent commercial and noncommercial material, as well as a reader-printer with a microfiche attachment. A data processing system will be instituted to cover all aspects of student records and business operations. An inservice series of teacher-education programs will be designed to orient teachers to a systems approach to instruction. A reconsideration of the teacher's role will also be planned. Creative uses of resources, media, and technology will be stressed throughout all school curriculums. Particular emphasis will be given to portraying the area's colonial history through films of present-day restorations, through samples of materials such as thatch and arrowheads, and through reproductions of furniture and houses of the period. Films will also be made of present-day cultural resources of the area. Instructional materials kits will be provided. Community resource personnel will be encouraged to participate in all school systems. Approximately 21,556 students, grades K-12, will be served.

Further information: Dr. George A. Mac Arthur, Norton Public Schools, 64 West Main St., Norton, Massachusetts 02766. (617) 285-4815

156. ES002060
VEHICLE FOR CHANGE
Traverse Bay Area Intermediate School District, Traverse City
OE No. 68–5353 Operational Project
Amount sought $198,428

An occupational training program in data processing will be established for all area public and nonpublic high school students. The program will provide traditional training for centrally located students and a modular, team teaching, telelecture mode of teaching for students in outlying schools.

A data processing center will be established and equipped. Counties served: Antrim, Benzie, Grand Traverse, Kalkaska, Leelanau.

Further information: William L. Gelston, Superintendent, Traverse Bay Area ISD, 1120 East Front Street, Traverse City, Michigan 49684. (616) 946-8920

157. ES002076
REGIONAL INSTRUCTIONAL MATERIALS SERVICE CENTER
N.Y. Schenectady, City School District
Project Number DPSC–68–5148
Amount sought $311,680
Descriptors—Booklists, Books, Cataloging, Electronic Data Processing, Instructional Materials Centers, Library Services, Periodicals

A library services center will be established to serve an 11-county area. Emphasis will be placed upon reducing duplication of effort through the use of electronic data processing in regard to centralized ordering, cataloging, and processing of book and nonbook instructional materials among the 236 participating school districts. A demonstration project will be established initially, in which three book catalogs for three school districts in the area will be prepared, listing holdings on magnetic tape or disc. Conventional cataloging will be provided so that book and nonbook materials can be integrated in each school's card catalog. A union catalog will subsequently be compiled, and a centralized book processing center will be established. In the demonstration project, all items added to collections through the processing center will be sorted and placed in a file on magnetic tape through the use of Quicktran, an IBM program. The shelf lists of each of the three schools will be microfilmed at the school, and this information will be keypunched at the center. Information on the periodical holdings of participating libraries will also be keypunched, and a consolidated purchasing list will be developed. A book examination center will be established to house a demonstration collection of review copies and prepublication items. New material will be held at the center initially and then rotated to other locations for selection purposes. A consultant will be engaged to train member schools in effective book selection. Approximately 250,870 students, grades K-12, will be served.

Further information: Mrs. Shirley M. Ebetino, Curriculum Center, 564 Broadway, Schenectady, New York 12305. (518) 377-8729

158. ES002093
INTEREST PROFILE ANALYSIS CURRICULUM
Widefield—Security School District No. 3, Security
OE No. 68–5168 Planning Project
Amount sought $97,740

An interest profile analysis curriculum, emphasizing the interest rather than the ability level of the student, will be designed to serve as the basis for an individualized instructional program for secondary schools. Teachers and department chairmen will attend institutes to study and validate proposed programs. Consideration will be given to the use of a computer in analyzing data related to student goals in each program area. Counties served: El Paso.

Further information: Donald Joiner, Administrative Assistant to the Superintendent, 701 Widefield Drive, Security, Colorado 80011. (303) 392-3481

159. ES002094
COOPERATIVE COMMUNITY EDUCATIONAL RESOURCES CENTER
Boulder Valley School District Region No. 2, Boulder
OE No. 68–5538 Operational Project
Amount sought $50,356

A computerized storage and retrieval system will be designed to provide teachers and students with abstracts of information on educational literature, instructional materials, resource people and places. A dissemination center will be staffed with professionals who will design and implement a plan for disseminating material. Personal interest and need profiles will be prepared so that users will receive only preferred information. Counties served: Boulder.

Further information: Richard M. Fawley, Director of Curriculum, Research, and Statistical Analysis, P.O. Box 186, Boulder, Colorado 80302. (303) 442-6931

160. ES002095
GENERAL ADVANCEMENT PROGRAM (GAP)
New London Public Schools, New London
OE No. 68–5282 Planning Project
Amount sought $37,378

Ten school districts will cooperate in developing a program to identify and study students who are poorly motivated, lacking in achievement, and who have no vocational goals. Testing and interviewing procedures and a computer facility will be used to gather information on the nature and educability of these students. Counties served: New London.

Further information: Joseph V. Medeiros, Super-

intendent of Schools, 134 Williams Street, New London, Connecticut 06320. (203) 443-5357

161. ES002101
PROJECT INFORM: A DISSEMINATION CENTER
Charleston Community Unit School District No. 1, Charleston
OE No. 68–5546 Operational Project
Amount sought $195,493

An educational engineering center, serving the entire State, will provide the means for storage and dissemination of information related to educational planning and experiences, research and experimental projects, and field testing. This communications system will permit schools to receive up-to-date information for use in their curriculums and management and will serve as a prototype for other States planning information systems. Counties served: Statewide.

Further information: Paul Seitsinger, Superintendent of Schools, 1115 Monroe Street, Charleston, Illinois 61920. (217) 345-2106

162. ES002110
NORTHWEST LOUISIANA SUPPLEMENTARY EDUCATION CENTER AND SERVICES
Bossier Parish School Board, Benton
OE No. 68–5195 Operational Project
Amount sought $509,265

A regional educational center will provide curriculum research and development programs; educational technology research and services, including educational TV and computer-assisted instruction; pupil personnel services, including special programs for gifted children; and related inservice training for teachers. The center will serve students of all levels, including college students. The services of local audiovisual materials centers will be integrated and coordinated. Counties served: Bienville, Bossier, Caddo, Claiborne, DeSoto, Jackson, Lincoln, Natchitoches, Red River, Sabine, Webster, Winn.

Further information: Emmett Cope, Superintendent, Bossier Parish School Board, Benton, Louisiana 71006. (318) 965-2281

163. ES002116
PROJECT TO DEVELOP EFFECTIVE USE OF COMPUTER-ASSISTED INSTRUCTION IN A LARGE PUBLIC SCHOOL SYSTEM
Board of Education of Montgomery County, Rockville
OE No. 68–5147 Operational Project
Amount sought $165,363

A program will be established in the elementary and junior and senior high schools to study the effectiveness of computer-assisted instruction and orient the teaching staff to its operation. Available software will be used in "real situations" and necessary adaptations will be made in existing software to meet needs of local curriculums. Use of CAI in diagnosing educational needs, testing, and program evaluation will be explored. Counties served: Montgomery

Further information: Homer O. Elseroad, Superintendent of Schools, 850 North Washington Street, Rockville, Maryland 20850. (301) 762-5000 Ext. 333

164. ES002124
INNOVATIVE IMPLEMENTATION OF COMPUTER-AIDED INSTRUCTION
School Committee, City of Boston, Boston
OE No. 68–5762 Operational Project
Amount sought $76,994

Computer techniques will be used to develop and implement diagnostic testing and instructional methods and materials for grades 1–7 on a pilot basis. Individualized instruction in reading, spelling, and auditory discrimination training will be emphasized. The program will utilize the technical resources and personnel of the Harvard Computer Center. Counties served: Suffolk.

Further information: William H. Ohrenberger, Superintendent of Boston Public Schools, 15 Beacon Street, Boston, Massachusetts 02108. (617) 227-5500

165. ES002128
A COMPUTER-ASSISTED INSTRUCTION LABORATORY IN MATHEMATICS AND SCIENCE
School District of Kansas City, Kansas City
OE No. 68–5103 Operational Project
Amount sought $301,585

A computer-assisted instruction (CAI) laboratory will be established to provide facilities for an eighth grade math-science course, stressing math as the language of science. Computer equipment and individualized instruction will be utilized to stimulate the student's interest and alter his attitudes toward math and science, as well as demonstrate the relationship of one to the other. Computer-oriented specialists will provide inservice training and consulting services to the staff. Counties served: Jackson.

Further information: James A. Hazlett, Superintendent of Schools, 1211 McGee, Kansas City, Missouri 64106. (816) 221-7565 Ext. 222

166. ES002152
PLANNING A COMPUTER-ASSISTED COUNSELING CENTER
Independent School District No. 30, Bartlesville
OE No. 68–5685 Planning Project
Amount sought $50,000

A center will be established to develop a comprehensive computer-assisted guidance and counseling program to serve students in grades 6–12 in a three-county area. A committee composed of representatives from State and local educational agencies will identify the variables common to decisionmaking processes and develop computer programs to aid the counselor in analyzing, retrieving, and summarizing the data. Counties served: Oklahoma, Tulsa, Washington.

Further information: Bill Crutcher, Business Manager, Administration Building, Seventh and Orage, Bartlesville, Oklahoma 74003. (918) 336-8211

167. ES002156
INDIVIDUALIZED INSTRUCTION THROUGH A LEARNER-CENTERED MULTI-MEDIA APPROACH
Austin Independent School District, Austin
OE No. 68–5102 Operational Project
Amount sought $139,865

Four multi-media centers will be established to provide a systems approach to developing individualized instruction for public elementary school children. Audiotapes, films with synchronized tapes, microfilm readers, and audiovisual stations for computer-assisted instruction and educational television will be utilized. Counties served: Bastrop, Bexar, Blanco, Caldwell, Comal, Gonzales, Guadalupe. Hays, Kendall, Travis.

Further information: Arby B. Carruth, Superintendent, 6100 North Guadalupe Street, Austin, Texas 78752. (512) 452-9331

168. ES002164
QUICK-TIME EDUCATION INFORMATION RETRIEVAL IN WISCONSIN
Joint School District No. 8, Madison
OE No. 68-5666 Operational Project
Amount sought $46,664

A statewide information retrieval system, utilizing the Permuted Indexing System developed by IBM, will be designed to provide school people with cross-referenced print-outs of research and ESEA title I and title III project activities within the State. The indexing system, called KWIC (Key Work In Context), will produce information at three levels: title, subject, and author; one hundred work abstracts of selected articles; and guided indexing to article. Counties served: Statewide.

Further information: Robert P. Gilberts, Superintendent, Madison Public Schools, 545 West Dayton Street, Madison, Wisconsin 53703. (608) 256-1911

169. ES002168
STANFORD-RAVENSWOOD COMPUTER-ASSISTED INSTRUCTION PROGRAM
Ravenswood City School District, East Palo Alto
OE No. 68–5083 Operational Project
Amount sought $1,075,816

The computer-assisted instruction program established for an elementary school will be revised and expanded for adaptation to other school systems. Lesson material will be evaluated, pre-tests prepared, and individualized instruction programed for a computerized training program in elementary school mathematics and language art. Counties served: San Mateo.

Further information: Roderick Moore, Superintendent of Schools, 2160 Euclid Avenue, East Palo Alto, California 94303. (415) 324-1621

170. ES002182
INDIVIDUAL COMPUTER-AIDED INSTRUCTION
Paintsville Board of Education, Paintsville
OE No. 68–5648 Operational Project
Amount sought $274,195

Arithmetic will be taught by computer, using a teletype machine familiar to students and teachers, at terminals in Breckinridge and Elliottsville. Each student will work at his pace according to his ability, enabling teachers to detect areas of weakness and provide needed assistance. Sixty teachers will attend a five-day workshop during the summer for training in computer-aided instruction. Counties served: Elliott, Johnson, Magoffin, Menifee, Morgan, Pike, Rowan.

Further information: Oren Teater, Superintendent of Schools, Paintsville, Kentucky 41240. (606) 789-3459

171. ES002188
PROJECT CONTEMPORARY COMPETITIVENESS
Bridgewater Public School Department, Bridgewater
OE No. 68–5208 Operational Project
Amount sought $165,439

A supplementary education center, located at a local college, will serve advanced and gifted public school students in a summer program, provide teacher workshops in team teaching, develop an

adult education program for institutional inmates and retired persons, and offer data processing services for school systems. Teaching interns from the college will serve in the schools. Counties served: Bristol, Plymouth.

Further information: Albert F. Hunt, Jr., Superintendent of Schools, Central Square, Bridgewater, Massachusetts 02324. (617) 697-6914

172. ES002191
INNOVATIVE IMPLEMENTATION OF GENERALIZED ACADEMIC SIMULATION PROGRAM (GASP)
School Committee, City of Boston, Boston
OE No. 68–5760 Planning Project
Amount sought $35,358

A new concept in computer programing will be introduced to plan the effective utilization of faculty and facilities in a proposed central high school. A research analyst and consultants will use educational data input to develop a strong education program. Computer techniques will be used for developing programed instructional material for use in the curriculum of the new high school. Counties served: Suffolk.

Further information: William H. Ohrenberger, Superintendent of Boston Public Schools, 15 Beacon Street, Boston, Massachusetts 02108. (617) 227-5500

173. ES002196
MONMOUTH EDUCATION COUNCIL
Long Branch Board of Education, Long Branch
OE No. 68–5336 Operational Project
Amount sought $94,196

An educational improvement center will be established to provide the staffs of 58 public and nonpublic schools with one year of orientation and inservice training in the planning and design of educational systems, systems analysis, communication interaction techniques, and technological advancements. A professional staff of specialists in computer systems design and application will provide programs in special education, adult education, instructional media, business operations, and curriculum research and development. Counties served: Monmouth.

Further information: Herbert A. Korey, Executive Director of the Monmouth Educational Council, Westwood Avenue, Long Branch, New Jersey 07740. (201) 229-5500

174. ES002206
OTIS (OREGON TOTAL INFORMATION SYSTEM)
Board of Education for the Intermediate Education District, Eugene
OE No. 68–5233 Operational Project
Amount sought $643,369

A comprehensive computer system will be developed to create a data bank which will include all areas of student, staff, and administrative information. A single programed control system and telecommunications network will link participating schools in a large geographical area and make data readily available for research, review, and planning. Counties served: Coos, Deschutes, Lane, Multnomah, Umatilla.

Further information: Noble Wheeler, Chairman, Board of Education, 748 Pearl Street, Eugene, Oregon 97401. (503) 342-5576

175. ES002207
MATHEMATICS INFORMATION SYSTEM SATELLITE CENTER
Pa., Greensburg, Westmoreland County Board of School Directors
Project Number DPSC–68–5453
Amount sought $169,914
Descriptors—Audiovisual Aids, Curriculum Development, Curriculum Guides, Elementary School Mathematics, Information Dissemination, Information Retrieval, Information Systems, Instructional Improvement, Instructional Materials, Mathematical Enrichment, Mathematics Curriculum, Mathematics Materials, Microfilm, Identifiers—PRIMES

A satellite center for the Pennsylvania Retrieval of Information in Mathematics Education System (PRIMES) will be established to serve a three-county suburban/rural area. Emphasis will be placed upon upgrading mathematics instruction through the dissemination of mathematics information in the areas of manipulative devices and audiovisual aids, computer-assisted instruction, printed supplementary and enrichment material, and significant professional literature. The PRIMES file consists of microfilm aperture cards of mathematics information which has been analyzed for content, grade level, problem type, vocabulary and symbolism, expected student behavior, and related information. Center staff will work with local school districts and individual teachers to promote effective use of PRIMES materials. Specific procedures for using PRIMES will continue to be developed and tested at the center in cooperation with the State Department of Public Instruction. Center staff will also maintain records and reports, so that appropriate feedback to the central system may result in necessary modifications. A 23-member curriculum study committee will be formed to sequence the elementary school mathematics curriculum, to select appropriate textbooks, and to

prepare curriculum guides which will be tailored to local needs. Center staff will support and develop local inservice programs by coordinating district activities with programs of local colleges, and by conducting regular workshops for key personnel. Approximately 71,949 students, grades K-6, will be served.

Further information: Francis J. Ziaukas, 140 East Otterman St., Greensburg, Pennsylvania 15601. (412) 837-2869

176. ES002213

COOPERATIVE IMPROVEMENT OF EDUCATIONAL OPPORTUNITY

Tex., Burleson, Independent School District

Project Number DPSC–68–5360

Amount sought $53,000

Descriptors—Adult Education, Community Resources, Computer-Assisted Instruction, Educational Change, Educational Television, Education Service Centers, Enrichment, Gifted, Information Retrieval, Inservice Teacher Education, Instructional Materials, Instructional Technology, Interagency Cooperation, Music Education, Preschool Education, Talented Students

An education service center will be established in a 10-county urban/rural area. Emphasis will be placed upon creating a flexible, spontaneous teaching climate. Center staff will provide direct service to district schools in the areas of—(1) educational planning, (2) inservice education for school staffs, (3) diagnostic services for individual students, (4) supporting instructional services, (5) enrichment programs for gifted and talented students, and (6) utilization of cultural resources in the area. Center staff will develop and implement technology-oriented enrichment programs, such as—(1) Project TNT to train school staffs in the use of television, computer-assisted instruction, and information-retrieval systems, and (2) Project MUSE to introduce instrumental music into the classroom. The center's special programs component will be directed toward interagency coordination in the areas of student appraisal and referral. Extension services of participating schools will be strengthened, and feasibility studies will be conducted in such areas as—(1) preschool education in urban schools, and (2) adult education in rural schools. Center staff will continue to research new educational programs and varying organizational patterns. School personnel will be trained to use the services of the regional media/instructional materials center. Approximately 156,600 students, grades 1–12, will be served.

Further information: Dr. Leslie P. Evans, 2900 W. Lowden, Fort Worth, Texas 76109, (817) 926-7724

177. ES002219

MATHEMATICS RESOURCE CENTER

Idaho, Idaho Falls, School District 91

II Project Number DPSC–67–3427

Amount sought $100,825

Descriptors—Audiovisual Aids, Computers Low Achievers Mathematical Applications, Mathematics Curriculum, Mathematics Materials, Problem Solving, Programmed Materials, Programming Resource Centers. School Industry Relationship, Student Motivation, Summer Workshop Tape Recordings.

A mathematics resource center will be established, and a new mathematics curriculum will be developed to enhance problem-solving skills among low-achieving high school students. Emphasis will be placed upon increasing student motivation through the introduction of business machines and applications. Students will use calculators and will be trained to flow-chart solutions to problems. A demonstration computer will be used to introduce the principles of computer programing. Students will be encouraged to engage in independent research and study, both during and after school hours. A teacher aide will be employed to free the mathematics teacher for more individual work with students. During a summer workshop, a writing team of mathematics teachers and businessmen will be formed to develop a source of typical problems from local business firms. Workshop participants will also develop a series of presentations to be recorded on a tape recorder, including necessary diagrams, drawings, and graphics to be prepared on transparencies for use on the overhead projector. Special types of aids for the resource center will also be studied in the workshop. A mathematics teacher will supervise the resource center and will be responsible for the development of any additional topics. Approximately 1,525 students will be served.

Further information: Wallace S. Manning, 150 North Water, Idaho Falls, Idaho 83401. (208) 522-7490

178. ES002226

INDIVIDUALIZED INSTRUCTION IN PROTOTYPE SCHOOL

N.Y., Syracuse, City School District

Project Number DPSC–68–5296

Amount sought $350,471

Descriptors—Audiovisual Aids, Behavioral Objectives, Continuous Progress Plan, Educational Research, Educational Technology, Elementary School Mathematics, Elementary School Science, Individual Instruction, Interaction, Interagency Cooperation, Programed Instruction, Reading,

Regional Laboratories, Sequential Learning, Testing, Urban Education

A replicable model for the individualization of instruction in urban schools will be established as a preliminary step toward a prototype elementary school. A systems approach will be adopted toward introducing educational technology and toward engineering the assembled and inventoried components into an interacting instructional system. Extensive cooperation will be maintained with the regional educational laboratory, as well as with other educational organizations, such as the University of Pittsburgh's Learning Research and Development Center. The individualized instructional program will be introduced at the K-3 level in the areas of reading, mathematics, and science. Each student will move through a sequence of behaviorally specified objectives in a continuous progress system. A guidance system will be developed to assist each student in his progress through sequenced objectives. The guidance system will be teacher operated, and aides will assist in handling needed materials. The feasibility of a computerized guidance system will be studied. Curricular objectives which are particularly vital for attainment of later goals will be identified. New developments in audiovisual programed instruction will be studied in cooperation with such firms as Eastman Kodak. Appropriate tests will be developed to correspond with the sequenced instructional objectives. A teacher workshop will be conducted to orient teachers to new concepts in individualized instruction, to new educational technology, and to the technical aspects of instruction in particular subject areas. Approximately 612 students, grades K-3, will participate in the demonstration phase.

Further information: Lowell Smith, 512 Emerson St., Syracuse, New York 13204. (315) 468-6491

179. ES002230

SPRED—SCHOOL PROGRESS REACHES EACH DISTRICT

Conn., Norwalk, Board of Education

Project Number DPSC–68–5166

Amount sought $296,044

Descriptors—Affluent Youth, Behavior Change, Data Processing, Disadvantaged Youth, Educational Technology, Educational Television, Guidance Services, Human Relations, Information Dissemination, Inservice Teacher Education, Instructional Materials, Interaction, Regional Cooperation, Sensitivity Training, Youth Programs

An education service center will be established in an urban suburban area. A five-pronged program will be planned—(1) human relations, (2) information sharing, (3) innovation, (4) inservice education, and (5) youth. A director will be engaged for each project component. The human relations director will arrange training conferences for the professional staffs of all participating school systems. Emphasis will be placed upon sensitivity training and interaction. The information sharing director will promote the expanded use of technological devices, particularly television and electronic data processing. Within the area, instruction will also be provided in the use of new media. Specialized materials will be acquired, evaluated, and loaned to participating schools. The innovation director will be concerned with information dissemination. Forces which block the adoption of new ideas will be identified, and ways to overcome these forces will be explored. Inservice programs will be designed and operated by master teachers within the school systems, assisted by outside consultants. A youth resource center will be established to serve the needs of both the affluent suburban youth and the disadvantaged inner-city adolescents. Emphasis will be placed upon effecting behavioral changes in youth through a combination of guidance, counseling, occupational training, and instruction in basic education. The youth program will be field tested in three communities, representing an inner-city area, a small city area, and a suburban area. Approximately 165,037 students, grades K-12, and adults will be served.

Further information: Anthony G. L. Brackett, 110 Post Rd., Darien, Connecticut 06820. (203) 655-8219

180. ES002242

COMPREHENSIVE PROGRAM FOR INNOVATION—PART II

School District of Philadelphia, Philadelphia

OE No. 68–5387 Operational Project

Amount sought $1,047,352

An educational center will be established to provide educational consultation and research, instructional materials, and computer programing of educational data. Teachers, interns, and student teachers will be trained, and schools will be provided with findings and pertinent data. Students in all city schools and community members will be served. Counties served: Philadelphia.

Further information: Robert L. Poindexter, Acting Superintendent, Parkway at 21st Street, Philadelphia, Pennsylvania 19103. (215) 448-3671

181. ES002244
A COMMONWEALTH CONSORTIUM TO DEVELOP, IMPLEMENT, AND EVALUATE A PILOT PROGRAM OF COMPUTER-ASSISTED INSTRUCTION FOR URBAN HIGH SCHOOLS
School District of Pittsburgh, Pittsburgh
OE No. 68–5523 Operational Project
Amount sought $326,636

Computer-assisted, individualized instruction programs in high school general mathematics, algebra, and chemistry will be developed by two major metropolitan school districts in cooperation with the State university and State Department of Education. Educators and computer personnel will develop curriculums and provide instructor training for a pilot program. Counties served: Allegheny, Philadelphia

Further information: Bernard J. McCormick, Deputy Superintendent, Ballefield and Forbes Avenues, Pittsburgh, Pennsylvania 15213. (412) 682-1700

182. ES002253
COMPUTER USES IN EDUCATION
Santa Barbara High School District, Santa Barbara
OE No. 68–5752 Operational Project
Amount sought $22,322

The facilities of a community computer center will be utilized to measure the effectiveness of computer-assisted instruction in high school algebra and physics. High school algebra and physics instructors will work with professional programmers to develop units of instruction. An inservice component will provide training for teachers selected to use the program. Counties served: Santa Barbara.

Further information: Norman B. Scharer, Superintendent of Schools, 720 Santa Barbara Street, Santa Barbara, California 93101. (805) 963-4331 Ext. 234

183. ES002266
AUTOMATED EDUCATIONAL DATA SYSTEM
Dougherty County Board of Education, Albany
OE No. 68–5795 Planning Project
Amount sought $59,547

Specialists and consultants will study methods for implementing an educational data processing center to gather, store, retrieve, analyze, and disseminate educational material as a means of improving the educational processes. Data processing systems in use at colleges and other educational agencies will be examined as a part of the study. Counties served: Dougherty.

Further information: J. J. Cordell, Superintendent of Education, 601 Flint Avenue, Albany, Georgia 31702. (912) 436-4843

184. ES002305
PROJECT ADAIR: AUTOMATED DATA ANALYSIS FOR INSTRUCTION AND RESEARCH
Hayward Unified School District, Hayward
OE No. 68–6677 Operational Project
Amount sought $63,380

Computer instruction will be given to 4,200 students and related inservice training, given to 113 teachers over a two-year period. Before the school year starts, a special computer programing course will be given to 30 teachers; these teachers will then help plan the program and will, in turn, train 113 teachers from public and nonpublic schools in the skills necessary to use computers and other automated data processing equipment and in the techniques of teaching students the fundamental concepts of the computer as a problem-solving tool. Students in six high schools will receive instruction in computer science as it relates to courses in business education, science, mathematics, and social studies. Students will be taught to write computer programs and apply the computer as a problem-solving tool in these subject areas. Techniques for refining and further developing written student programs will be facilitated by the use of optical scanners and by the services of two systems analysis consultants to help the students produce introductory programs for a computer. Throughout the program, teachers will develop new curriculums in different subjects and at different grade levels, with emphasis on the related role of computers. Counties served: Alameda.

Further information: William L. Cunningham, Superintendent of Schools, 1099 "E" Street, Hayward, California 94544. (415) 538-6100 Ext. 211

185. ES002311
PROJECT REMODEL
Conn., Wethersfield, Board of Education
Project Number DPSC–68–6353
Amount sought $78,383
Descriptors—Computer Oriented Programs, Individualized Programs, Junior High School Students, Learning Laboratories, Material Development, Mathematics Education, Mathematics Materials, Resource Materials, Student Motivation, Teacher Aides

A laboratory approach to the study of mathematics will be offered to junior high school students in a suburban area. Emphasis will be placed upon increasing student motivation through the application of individualized learning activities. Project staff will compile a mathematical resource

book during a summer workshop session and will meet regularly with consultants during this period. The resource book will contain—(1) the laboratory activities that can be used in the model mathematics laboratory and/or in the laboratory classroom, (2) the suggested mathematics material, media, and/or equipment to complement the various identified laboratory activities, (3) the identification of the various computational skills, concepts, applications and/or mathematical appreciation contained in each laboratory activity for teacher use, and (4) a cross reference to mathematics curriculum topics within a model junior high school. Project personnel will identify and develop laboratory activities for the resource book under the following categories—(1) fundamental computer concepts, vocabulary, and symbolism, (2) individualized projects and activities, (3) construction of mathematical models, (4) group laboratory activities and procedures, (5) heuristic materials for mathematics instruction, including games, puzzles, and problem situations, and (6) historical awareness. Research assistants will be selected from nearby colleges to conduct background research and to act as teacher aides during the test phase of the program. Approximately 2,426 junior high school students will be served.

Further information: Otto C. Hufziger, Superintendent, 222 Main St., Wethersfield, Connecticut 06109. (203) 529-8611

186. ES002313
SARASOTA'S EDUCATIONAL EXPLORATION DEVELOPMENT SCHOOL
Sarasota County Board of Public Instruction, Sarasota
OE No. 68–6139 Operational Project
Amount sought $343,876

A centralized school will offer individualized, in-depth instruction to enable gifted children in grades 3–12 to advance at their own rates. Students will be selected and advanced to higher levels of learning exploration through interviews and psychological and academic tests. Inservice training will be provided for the teaching staff; and data processing, programed learning equipment, and library materials will aid in each student's intellectual exploration. Counties served: Sarasota.

Further information: Herbert P. Field, Chairman, 2418 Hatton Street, Sarasota, Florida 33577. (813) 958-8831

187. ES002320
EVALUATION FOR INDIVIDUALIZED INSTRUCTION
Ill., Downers Grove, Public Schools District 99
Project Number DPSC–68–6194
Amount sought $371,026
Descriptors—Computer Oriented Programs, Individual Instruction, Measurement, Performance, Student Evaluation, Student Testing, Teacher Developed Materials, Teacher Improvement, Teacher Workshops, Test Construction, Testing Problems, Tests

The technology of testing and test construction will be used to develop teacher skills in the individualization of instruction. A three-pronged program will be planned—(1) providing teachers with improved skills in the construction, development, and use of classroom evaluation procedures, (2) demonstrating the correlation between improved teacher testing skills and the individualization of instruction, and (3) providing a model for the use of continuous evaluation information in improving instruction. Thirty-two teachers from all grade levels will be selected to participate in workshop sessions designed to—(1) develop a classification system for test items, and (2) construct a pool of usable, teacher-made test items, classified as to subject, topic, level of difficulty, and discrimination ability. A retrieval and test-scoring system will be organized, and the use of a computer-based facility will be explored. For the continuous evaluation component, each student will be tested at least four times each year, and the performance of each individual student will be plotted graphically to produce performance curves for individuals, classrooms, grade levels, and school. Frequent testing should provide better bases for teacher diagnosis of student development. The project will be conducted in cooperation with the Institute of Educational Research. Approximately 52,295 students, grades 1–12, will be served.

Further information: F. Gregg Rybinski, Assistant Superintendent, 936 West Maple Avenue, Downers Grove, Illinois 60515. (312) 968-5454

188. ES002331
PLANNING FOR CHILDREN WITH LEARNING DISABILITIES
Calcasieu Parish School System, Lake Charles
OE No. 68–6042 Planning Project
Amount sought $44,368

A preliminary study will identify those children presently enrolled in local elementary and high schools who need special training because of learning disabilities. An advisory committee, composed of representatives from public and nonpublic schools and other agencies with a particular interest in the field of learning difficulties, will conduct a survey of literature concerned with the diagnosis and remediation of learning difficulties; and will compile lists of operating programs for students

with learning difficulties; and will visit model programs and report findings. Students requiring special training will be identified through school records, I.Q. scores, achievement tests, and teacher recommendations. Information will be analyzed through computerized data processing. Tentative categorization of major types of learning difficulties found in the local schools will be made. Consultant services will be secured for physical therapy, social work, psychiatry, neurology, opthalmology, and pediatrics conferences and screening. This preliminary study should produce a workable plan to provide better educational services for these children. Counties served: Calcasieu.

Further information: C. W. Hanchey, Superintendent of Schools, 1724 Kirkman Street, Lake Charles, Louisana 70601. (318) 433-6321

189. ES002343

DEVELOPING A CITY CENTER FOR LEARNING

Independent School District No. 625, St. Paul
OE No. 68–6499 Operational Project
Amount sought $200,000

A diagnostic-remedial center and a nongraded primary demonstration school will be operated by an educational service and resources center. This center will be established as part of a community program to rehabilitate and revitalize the core of an urban area. The primary school will serve as the foundation for the educational-progress activities of the center and will emphasize intensive parental and community involvement. The center will also be concerned with student, teacher, and curriculum development. Multi-media resources, including audiovisual materials, realia collections, and libraries, presently being used in the various schools will be expanded by a task force from the center; mobile laboratories will be provided; and units of computer-assisted instruction will be developed. Facilities for continuing vocational and avocational education will be developed for the community. Counties served: Ramsey

Further information: Donald W. Dunnan, Superintendent of Schools, 615 City Hall, St. Paul, Minnesota 55102. (612) 223-4393

190. ES002366

PILOT CITIES AREA DEMONSTRATION SCHOOLS

Board of Education of the City School District of the City of Cincinnati, Cincinnati
OE No. 68–6700 Planning Project
Amount sought $125,372

A complete school program will be planned for one model elementary school and one model junior high school to be established within the pilot cities area of Cincinnati. Ten task force committees will be formed to study various aspects of the school program; committee areas of concern will include computer-assisted instruction, preschool programs, teacher development, and a community-center program. Counties served: Hamilton

Further information: Paul A. Miller, Superintendent, 230 East Ninth Street, Cincinnati, Ohio 45202. (513) 621-7010

191. ES002373

PESO EDUCATION SERVICE CENTER PROJECT

Tex., Amarillo, Peso Education Service Center Region 16
Project Number DPSC–68–5902
Amount sought $85,000
Descriptors—Data Processing, Demonstrations (Educational), Educational Planning, Education Service Centers, Instructional Media, Learning Disabilities, Regional Cooperation, Staff Improvement.

An education service center will be established as one of 20 in a statewide network. Emphasis will be placed upon creating a planning framework so that activities, programs, and services to meet regional needs will be provided. Center staff will initiate new programs and services in the areas of—(1) selected client services, covering diagnostic and remediation for students with learning disabilities, (2) new organizational patterns and arrangements, including team teaching, educational television, and interschool instructional services, (3) staff development services, (4) demonstration programs and schools, (5) central media services, (6) selected fiscal services, including financial accounting, student accounting, and staff accounting, and (7) surveys and analysis of data. Extensive cooperation will be maintained with the state university, which will provide the computer facilities. Approximately 92,307 students, grades 1–12, will be served.

Further information: Huelyn W. Laycock, Director, Peso Education Service Center Region 16, 1601 S. Cleveland, Amarillo, Texas 79102. (806) 372-8722

192. ES002376

CENTRAL CITIES PROGRAM

Houston Independent School District, Houston
OE No. 68–6707 Operational Project
Amount sought $886,738

A program will be designed to help establish a positive self-image in each of the 5990 participants as a member of his own culture and community and in harmony with his heritage so that this self-

image will be conducive to continued growth and fuller realization as an individual. There will be a community-based program including preschool as well as adult education in each of five elementary school centers. A cooperative occupational counseling and vocational program will be offered in both elementary and secondary schools of the subsystem. This program will include on-the-job training and part-time employment of secondary school students in a full 12-month school program. An extensive health, physical fitness, and recreational program will be developed for grades K through 12. Existing educational television and computer facilities will be made available as needed. Counties served: Harris.

Further information: H. W. Elrod, Superintendent for Instruction and Administration, 1300 Capitol Avenue, Houston, Texas 77002. (713) 234-9871

193. ES002384
COORDINATION OF RESOURCE PERSONNEL SERVICES
Wash., Everett, Intermediate District 8
Project Number DPSC–68–6515
Amount sought $155,295
Descriptors—Community Resources, Information Dissemination, Inservice Education, Program Evaluation, School Community Programs

An education service center will be established in an urban/rural area to—(1) foster coordination between local school districts and community resource services, and (2) promote inservice training in program evaluation and in information dissemination. The coordinating service center staff will —(1) analyze and evaluate the extent and methods of using resource personnel services by the local school districts, and (2) evaluate and document the procedures used to stimulate and facilitate coordintion, in order to provide a basis for describing an expanded service role for intermediate agencies. Ten prototype projects will be initiated, including an indepth dropout study, an analysis of occupational training needs, a series of conferences for school and community agency personnel, and a computer instruction course. The inservice training component will be oriented toward improving the evaluation and dissemination of title III project information. Six regional training centers will be established within the State. Each center will offer four 2-day sessions on evaluation and four 2-day sessions on dissemination. Approximately 788,172 students, grades K-12, will be served.

Further information: H. M. Gilmore, Ed.D., Room 328, Courthouse, Everett, Washington 98201. (206) 259-9374

194. ES002391
INDIVIDUALIZED INSTRUCTION PROGRAM FOR PRIMARY GRADE PUPILS
Joint District No. 8, Shawano
OE No. 68–6749 Operational Project
Amount sought $100,000

An attempt will be made to devise a learning environment at the primary grades level that will be equally optimized for Menominee and non-Indian pupils alike. Efforts will be directed to planning the overall design and operating procedures for a computer-assisted teaching system, whereby basic concepts and skills in primary grade communications, arts and mathematics can be taught on an individual, self-paced basis. Coincidentally a professionally-staffed inservice program will undertake to develop within-staff competence in producing CAI-series optimally matched to learner needs specific to the local area. Counties served: Shawano

Further information: Arnold A. Gruber, Superintendent, 204–210 South Franklin Street, Shawano, Wisconsin 54166. (715) 526-3195

195. ES002392
AUTOMATION FOR ISOLATED SCHOOLS
Freemont County Vocational High School, Lander
OE No. 68–6687 Operational Project
Amount sought $7,743

A computer will be used to increase the efficiency of high school class scheduling and personnel services for 973 students. Teachers will be asked to develop time/class-size patterns for each of their subjects for processing into a master schedule, using as a basis the theory that different academic subjects require different degress of attention. Thereafter, the computer will be used to generate a class schedule for each student, taking into account the amount of energy required by teacher and pupil to make a course successful. In addition, the computer will be used for student record and information storing and processing to permit rapid identification of problem areas to be dealt with in individual guidance consultation. Counties served: Fremont.

Further information: John W. Reng, Superintendent, Fremont County Vocational High School, 1000 Main Street, Lander, Wyoming 82520. (307) 332-4711

196. ES002404
ANNISTON EDUCATIONAL PARK—INTERNAL COLLIGATION (AEPIC)
Ala., Anniston, City Board of Education
Project Number DPSC–68–6410
Amount sought $158,625
Descriptors—Behavioral Objectives, Curriculum

Development, Diagnostic Teaching, Educational Parks, Individual Instruction, Information Dissemination, Information Retrieval, Inservice Teacher Education, Instructional Materials, Learning Characteristics, Student Evaluation, Test Construction

Personalized learning will be the focus of the internal program to be developed for an educational park. Initial project emphasis will be directed toward establishing the process for an ongoing program of adapting and developing curriculum materials within the definitive framework of the anniston grid. Area teachers will receive inservice training covering—(1) use of grid as an objective-generating instrument, (2) application of the principles of evaluation procedures, and (3) adaptation of curriculum content and methodology to each students learning style. Diagnostic procedures to be used in prescribing individualized instruction will be based on the findings of Project Plato, a U.S. Office of Education-sponsored program. Samples of newly designed curriculums, samples of valid instructional media, and locally developed instructional materials will be classified, cataloged, and stored on electronic data processing tape to provide for instantaneous access. Project staff will also—(1) continue the identification of the nomenclature of learning styles, (2) phase in system analysis procedures, (3) use elements explicit in the intellectual skills continuum of the grid to structure sequentialized behavior and performance objectives for each subject-matter area, (4) construct test items based on grid-generated objectives, and (5) disseminate information to the professional community and to the general public. Approximately 8,413 students, grades K-12, will be served.

Further information: Floyd McLeod, 1425 Woodstock Ave., Anniston, Alabama 36201. (205) 236-2526

197. ES002409

URBAN STUDIES CENTER—A PROTOTYPE PROGRAM IN URBAN EDUCATION

Calif., Oakland, Unified School District

Project Number DPSC–68–5411

Amount sought $372,392

Descriptors—City Problems, Curriculum Development, Field Trips, Fine Arts, Heterogeneous Grouping, Information Dissemination, Museums, Nature Centers, Planetariums, Resource Centers, Science Laboratories, Science Teaching Centers, Suburban Youth, Urban Education, Urban Environment, Urban Youth

An urban studies center and three satellite educational stations will be planned for a metropolitan area. Emphasis will be placed upon providing guided field experiences for mixed urban-suburban groups of students. A centralized facility will be established to provide for the collection and dissemination of information and for materials related to the problems of urban-suburban living. Center staff will attempt to provide all area students with a unique curriculum, aimed specifically at finding solutions to identified urban educational problems such as conservation of natural resources, transportation, and cultural and racial isolation. Satellite stations will be established at a science center, a museum, and a nearby college. The science center will contain a physics electronics laboratory, a centralized data computer, an observatory, and a planetarium, as well as a nature area. Discovery learning units will be prepared for student use at the subcenter. The museum, which contains four classrooms and a theater, will be used for fine arts presentations and for displays and exhibits. The college substation located in a suburban area, will provide for geological field trips and simulation experiences revolving around urban dynamics. Approximately 247,336 students, grades 1–12, will be served.

Further information: Stuart S. Philips, Superintendent, 1025 Second Ave., Oakland, California 94606. (415) 836-2622

198. ES002415

GREATER REGIONAL OPPORTUNITIES FOR WATERBURY

Board of Education, Woodbury

OE No. 68–6107 Planning Project

Amount sought $50,315

Local business and industry will be encouraged to participate in solving a variety of educational problems through the establishment of a regional opportunities center. Analysis of information for more effective communication between educators, researchers, and computer personnel in charge of hardware and software programs is planned; and opportunities for employment in the area will be investigated. Attention will be given to curriculum development, use of technology and media, and possible use of television. Programs for students who are academically gifted will be studied, and the interdependence of schools of higher learning and industry will be considered. Counties served: Litchfield, New Haven.

Further information: Theodore H. Martland, Superintendent of Schools, School Street, Woodbury, Connecticut 06798. (203) 263-2819

199. ES002418

DOVACK METHOD FOR TEACHING READING

Jefferson County Board of Public Instruction, Monticello

OE No. 68–6004 Operational Project

Amount sought $67,004

The DOVACK (Differentiated, oral, visual, aural, computerized, kinesthetic) self-pacing method for teaching reading to retarded children will be field tested in a portable classroom. Reading deficiencies of individual students will be isolated by computer analysis and by review of tape recordings of stories dictated by the students. Printed versions of these stories will be played back for the students on the computer's display screen, where visual recognition of the words can be made by the student. The student will also be able to trace partially known words with felt tip pens. The observing teacher, in this way, can notice where reading difficulties exist and can list deficiencies that must be corrected. Three experimental groups, each composed of 30 retarded readers drawn from grades 1–6, will be taught by this method, while a parallel program—using more conventional approaches—will be conducted in three control classes, each having 30 retarded pupils. Program evaluation will be made in terms of adaptability, effectiveness, and economic feasibility of the experimental group methods in comparison with the control group methods as results of reading tests are computer compiled and analyzed. Counties served: Jefferson.

Further information: Desmond M. Bishop, Superintendent of Public Instruction, P.O. Box 499, Monticello, Florida 32344. (904) 997-2022

200. ES002425

A RURAL COUNTY COMPUTER-RELATED INSTRUCTIONAL TECHNOLOGY PROJECT

Wakulla County Board of Instruction, Crawfordville

OE No. 68–6399 Operational Project

Amount sought $172,700

Computer-based instructional (CBI) materials in mathematics, reading, and spelling, which are successfully in use in urban/suburban areas, will be validated via a time-sharing, remote-processing computer for use by underachieving rural students. The CBI materials used will be adapted to local needs, teachers will be trained in their use, and evaluation instruments will be assembled or developed for measuring achievement and interest. Special English language materials will be prepared for both CBI and conventional classroom use to change some of the colloquial speech patterns of the area. To develop positive parental attitudes towards the program, a series of adult presentations will be developed that will provide relevant information about CBI, the nature and benefits of education in general, and the role of educational innovations in their children's lives. Parents will also be familiarized with community service agencies, libraries, and educational opportunities open to them. Counties served: Wakulla

Further information: William E. Whaley, Superintendent of Public Instruction, P.O. Box 98, Crawfordville, Florida 32327. (904) 926-3661

201. ES002433

SYSTEMS APPROACH TO COMMUNITY EDUCATIONAL IMPROVEMENT

Ga., Atlanta, Board of Education

Project Number DPSC–68–6744

Amount sought $252,418

Descriptors—Community Resources, Community Schools, Data Analysis, Disadvantaged Youth, Individual Instruction, Inner City, Inservice Teacher Education, Institutes (Training Programs), Master Teachers, School Community Cooperation, Systems Approach, Urban Education

An evolutionary systems approach will be adopted in the formation of an educational subsystem for an inner-city ghetto. Emphasis will be placed upon—(1) providing a systems approach to the utilization of staff, instructional strategies, and media, (2) devising specific performance objectives in accordance with the identified characteristics of students, (3) developing vertically educational opportunities, extending from infancy through job retraining cycles, and (4) coordinating horizontally all appropriate community resources. In cooperation with Title XI, NDEA, a 6-week summer institute will be held to train 50 teachers in new methodologies for teaching disadvantaged youth. A recently renovated high school in the target area will be reopened as a community school, and institute graduates will be selected for the new faculty. Also, as vacancies occur in the feeder-school faculties, institute graduates will receive careful consideration as replacements. The educational subsystem will involve a director, three coordinators (one each in the areas of preschool and elementary education, secondary and adult education, and coordination of community resources), a research assistant, and 10 lead teachers. Lead teachers will work with small groups of teachers in facilitating improvements in their respective areas of specialty. In addition, a systems analyst will be engaged to assist in automating the

various processes in the subsystem and in using the computer for individualizing instruction. All team members will cooperate in the coordination and expansion of existing and ongoing school/community programs. Approximately 5,035 students, grades K–12, will be served.

Further information: Dr. John W. Letson, Superintendent, 224 Central Avenue S.W., Atlanta, Georgia 30303. (404) 522-3381

202. ES002434
EDUCATIONAL CIRCUMFERENTIAL INFORMATION SYSTEM (E.C.I.S.)
School District No. 422, Cascade
OE No. 68–6040 Operational Project
Amount sought $120,000

A statewide program will implement and utilize previously designed information systems to benefit all educational levels. Educational criteria in the areas of school finance, facilities, student accounting, staff accounting, and curriculums will be disseminated. Workshops will acquaint teachers with the capabilities of the computerized information system, and accumulated data in the memory bank will serve as a basis for projecting the future needs and plans of participating schools. On-the-job training in the computer field will be available to students, and a system of computer instruction by mail will be devised for secondary students in remote localities. Counties served: Statewide.

Further information: Jerry L. Evans, Superintendent of Schools, Cascade High School, Cascade, Idaho 83611. (208) 382-3511

203. ES002452
EDUCATIONAL AND CULTURAL RESOURCES PROGRAM
Washington County Board of Education, Hagerstown
OE No. 68–6257 Operational Project
Amount sought $37,576

All existing county resource media will be cataloged, stored, and automatically retrieved upon request from cooperating public, nonpublic, and independent county schools with the implementation of an educational resources program. An investigation will be made of existing retrieval systems, and a plan will be devised for local use based on the investigative findings. Workshops, checklists, and meetings of school officials will furnish an inventory of existing educational materials that are on hand. A plan for the sequential development of an automated retrieval system will be devised after materials have been identified, catalogued, and cross-indexed. Modular development is planned to permit phased implementation. Counties served: Washington.

Further information: William M. Brish, Superintendent of Schools, Box 730, Commonwealth Avenue, Hagerstown, Maryland 21740. (301) 731-2700

204. ES002468
EXPLORATION AND TRAINING
Miss., Hernando, Desoto County Board of Education
Project Number DPSC–68–6081
Amount sought $42,371
Descriptors—Community Involvement, Curriculum Development, Data Processing, Educational Innovation, Inservice Education, Program Planning, School Visitation, Student Personnel Services

Educational innovation will be studied for future implementation in the schools of a rural, disadvantaged area. Emphasis will be placed upon developing among area teachers an understanding of and a receptivity to new educational methodologies, learning concepts, and technologies. A 54-member planning council will be formed, composed of teachers, administrators, community leaders, and students. Within the planning council, three study groups of 18 persons will be created. Each group will concentrate on an assessment of their own needs in the examination of one of the following areas—(1) instruction-community relations, (2) curriculum-student personnel services, and (3) instructional technology-data processing. Each group will be assigned several consultants in the areas of concentration. Each group will hold biweekly workshop sessions to continue assessment of current teaching practices and techniques. The entire planning council will meet bimonthly and guest lecturers will make presentations in such areas as microteaching instructional technology, and the laboratory approach. Each study group will also visit two sites during the year where the specific area of educational innovation they are studying is being successfully implemented. Approximately 1,083 students, grades 1–12, will be served.

Further information: W. S. Carter, superintendent, Hernando, Mississippi. 38632 (601) 368-8661

205. ES002477
CHILD DEVELOPMENT CENTER
Reorganized District No. R-XI, Dexter
OE No. 68–5810 Operational Project
Amount sought $201,983

A center will be established to provide professional services for 58 school districts and to determine priorities for educational needs. A pilot program will acquaint the staff with local needs. Consultants, supervised teacher training, clinical

facilities, and comprehensive computer services will be supplied. Reading specialists, social workers, school psychologists, speech therapists, and psychometrists will concern themselves with virtually all aspects of the growth and development of the individual child. The center will operate in a predominantly rural area and serve as a model for similar areas. Counties served: Bollinger, Butler, Cape Girardeau, Carter, Dunklin, Mississippi, New Madrid, Pemiscot, Ripley, Scott, Stoddard, Wayne.

Further information: Thurston Hill, Superintendent of Schools, P.O. Box 289, Dexter, Missouri 63841. (314) 624-2622, Ext. 2

206. ES002495

DESIGNING LEARNER-CENTERED INSTRUCTIONAL SYSTEM

Union Free School District No. 10, Mineola
OE No. 68–6141 Operational Project
Amount sought $71,125

Using the systems approach, this project will design, develop and implement a learner-centered instructional program in vocationally related mathematics. The system will require the specification of performance objectives, coupled with statements of minimum performance criteria, and the development of instructional strategies to achieve a program of individualized instruction for noncollege-bound students. Available teaching materials and resources will be analyzed to determine their appropriateness in relation to specific performance objectives. Participating students' test scores, record cards, and conference results will be coded for computer storage and retrieval. Counties served: Nassau.

Further information: Ben Wallace, Superintendent of Schools, Mineola Public Schools, 200 Emory Road, Mineola, New York 11501. (516) 747-6700

207. ES002499

STATEWIDE REGIONAL DATA PROCESSING PLANNING

Albany-Schoharie-Schenectady, Albany
OE No. 68–6306 Planning Project
Amount sought $180,000

Systems analysis and design will be undertaken to develop a statewide educational data processing system, utilizing as fully as possible the capabilities of the electronic computer, to supply information to the State Education Agency, teachers, guidance personnel, school administrators, Board of Education members, business officials, and the general public. One or more consulting firms will perform parts of the three-phase program, consisting of analysis and design, subsystem programing, and refining and final checkouts. An evaluation and training center will be established in the school district of the State capital, with the expectation that this pilot program will then be expanded to the rest of the State. Both equipment and procedures will be evaluated at the center. The total system, consisting ultimately of nine regional centers and three larger evaluation and training centers, will seek to avoid costly duplication of data-processing efforts throughout the State. Counties served: Albany, Columbia, Greene, Rensselaer, Saratoga, Schenectady, Schoharie, Washington.

Further information: John H. Fink, District Superintendent of Schools, 381 Sandcreek Road, Albany, New York 12205. (518) 459-1414.

208. ES002500

INFORMATION RETRIEVAL AND DISSEMINATION CENTER

Union Free School District No. 5 and Levittown Public Library, Levittown
OE No. 68–6326 Operational Project
Amount sought $50,843

Rapid and efficient information retieval and dissemination will be accomplished through cooperative efforts between the public library and the public and nonpublic schools serving 20,000 students in a suburban school district. A center will be established in a centrally located library that has a good basic collection of books and periodicals, as well as the capability of locating and reproducing multiple copies from the variety of available resource materials. Teacher and studen' requests will be processed, and daily deliveries will be made to schools. The center, which has space available for easy conversion to storage, will be staffed by library personnel and will be operational for many hours each day. School and library personnel will be instructed in procedures to make maximum use of facilities and materials. Counties served: Nassau.

Further information: Louis Blumberg, Superintendent, Union Free School District No. 5, North Village Green, Levittown, New York 11756. (516) 796-6800

209. ES002520

IMPROVED EDUCATIONAL PROGRAM THROUGH INTER-SCHOOL COMMUNICATIONS

Moore County Board of Education, Carthage
OE No. 68–6379 Operational Project
Amount sought $164,508

Audiovisual aids, closed-circuit television, computer-assisted instruction, and flexible scheduling will be utilized to achieve individualized instruction in nine elementary schools, a new model high school, and a community college to be located in an educational park. High school students will participate in special classes and extracurricular activi-

ties to learn operation and use of data processing equipment. Cooperative educational efforts, involving school personnel from surrounding administrative units, will be directed toward curriculum upgrading; and such aids as radio, teletype, telephone teacher, telelecture, telescript, teletrainer, computers, and television will be used to motivate students to higher academic achievement, individualize instruction and study, and provide the student an opportunity to understand the importance of modern electronic devices. Specialized teaching methods will be designed for the model school area. Counties served: Chatham, Harnett, Hoke, Lee, Montgomery, Moore, Randolph, Richmond, Scotland.

Further information: R. E. Lee, Superintendent, Moore County Schools, Box 977, Carthage, North Carolina 28327. (919) 947-2976

210. ES002543

REGION IV EDUCATION SERVICE CENTER

Educational Service Center, Region IV, Houston

OE No. 68–6643 Operational Project

Amount sought $85,000

A regional center will utilize cooperative planning to provide programs, activities, and services in instructional improvement, evaluation, and development of procedures and techniques for 56 school districts in seven counties. The center will also contribute to statewide educational planning and will coordinate various locally supported components of its program, including media and computer services. Counties served: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Waller.

Further information: T. S. Hancock, Executive Director, 202 North Loop West, Houston, Texas 77018. (713) 869-7146

211. ES002549

CURRICULUM IMPROVEMENT THROUGH MODULAR SCHEDULING

Roanoke County School Board, Salem

OE No. 68–6435 Operational Project

Amount sought $112,176

A flexible, modular curriculum will be established in a model school enrolling 1,350 students, grades 7–12. Curriculum improvement will be achieved through the addition of new courses and instructional innovations; instructional techniques such as team teaching, teacher aides, individualized instruction, and inservice teacher training; and better service to individual students to foster their self-reliance and meet their individual needs. An instructional materials center will be established to house library materials, multi-media aids, study carrels, learning laboratories, and areas for independent study and research. A central computer control will also be established to provide efficient administration of school resources. Counties served: Roanoke.

Further information: Arnold R. Burton, Superintendent of Schools, 526 College Avenue, Salem, Virginia 24153. (703) 389-7244

212. ES002555

COMPUTER-ASSISTED INSTRUCTION FOR HANDICAPPED CHILDREN

Project Number DPSC–69–6775

Amount sought $180,685

Descriptors—Computer-Assisted Instruction, Elementary School Students, Handicapped Children, High School Students, Mentally Handicapped, Parochial Schools, Public Schools

The feasibility of extending computer-assisted instruction to classes for handicapped children by operating teleprocessed terminals from a time-shared computer also used for business applications will be explored. Fifteen brain-damaged or disturbed children of high school age and fifteen children of below average ability from a local parochial school will study the economics, spelling, math, and science programs which are presently available. Ten children in the age group of seven to ten who are still unable to read will use the initial sounds program and the beginning arithmetic program, and ten elementary school students will take the elementary level programs. Students will be scheduled on the computer terminals one at a time during the school day under the supervision of teachers and terminal supervisors.

Further information: Dr. Noble J. Gividen, 42 Triangle Center, Yorktown Heights, New York 10598. (914) 245-2700

213. ES002559

REGIONAL INFORMATION EXCHANGE FOR THE HANDICAPPED

Project Number DPSC–69–6784

Amount sought $174,752

Descriptors—Computers, Data Collection, Handicapped Children, Information Centers, Information Dissemination, Information Storage

The regional information exchange for the handicapped will form a basis for future program planning for handicapped children, better utilize local services, and provide a system for mutual assistance between and among public and private educational institutions, health and social agencies in the county. All pertinent data on handicapped children and services for the handicapped in the county will be collected in a centralized computer

bank and will be made available to educational, social and health agencies as needed. Approximately 215,225 students, grades K–12 will be served.

Further information: Mrs. Grace Stipo, Treasurer, Board of Cooperative Educational Services, 12 Berkley Drive, Port Chester, New York. (914) WE 7-3820

214. ES100049

PLANNING SERVICES FOR HANDICAPPED CHILDREN

Project No. 14–69–0188

Amount sought $29,975

Descriptors—Educational Planning, Handicapped Children, Multiple Handicapped, Computer Science, Information Processing, Demonstration Projects, Diagnostic Teaching, Referral, Clearinghouses

The objectives of this project are: (1) to use computer facilities for centralized storage and retrieval of information about multiple-handicapped minors, (2) to establish demonstration or laboratory classes for multiple-handicapped children, (3) to establish a clinic for prescriptive services to multiple-handicapped children, and (4) to establish a clearinghouse and referral center. A task force serves as the primary contact for the project coordinator, and helps in determining the location and emphasis of new programs and services being originated. Efforts are made to identify appropriate agencies to assume responsibility for the initiation of new programs needed in the community. The approximate number of students being served is 37,125, in addition to 3,250 who are not presently enrolled. This represents a grade span of from prekindergarten through Grade 12, with students coming from public schools only.

Further information: Project Director, ESEA, Title III, Department of Education, San Diego County, 6401 Linda Vista Road, San Diego, California 92111

215. ES100164

REGIONAL INFORMATION EXCHANGE FOR THE HANDICAPPED

Board of Cooperative Educational Services, Port Chester, New York

Project No. 42–69–0802

Amount sought $119,752

Descriptors—Handicapped Children, Information Centers, Computer Storage Devices, Data Bases, Educational Improvement, Social Services

All pertinent data on handicapped children and services for the handicapped in Westchester County are being collected in a centralized computer bank. The data are available at all times as a resource for school program planning; to help predict future funding needs, teacher recruitment, and teacher training; to serve local colleges and universities in their research and programming; to encourage preventive services by tracing preschool age handicapped children; to draw the attention of social and health agencies to future demands on their services. Through the efforts of this project, education for the handicapped should be improved, and gaps in existing programs and services for the handicapped can be delineated. The project staff consists of a project director and two research assistants who are responsible for the data collection, processing, and dissemination functions. Two types of program evaluations will be carried out—a process evaluation and an outside-team evaluation. Approximately 166,559 students are enrolled in public school and 48,666 are enrolled in private schools in the geographic area served.

Further information: Project Director, ESEA, Title III, Board of Cooperative Educational Services, 2nd Supervisory District, 17 Berkley Drive, Port Chester, New York 10573

216. ES100206

INTEGRATED MANAGEMENT SYSTEM FOR PUPIL TRANSPORTATION

Project No. 45–69–0098

Amount sought $159,500

Descriptors—Management Systems, Student Transportation, Decision Making, Transportation, Computers, Cost Effectiveness, Statistical Data, Maintenance

A computer-assisted system will schedule pupil transportation services in an effort to achieve greater efficiency than is provided by the current hand-routing method. A system of reporting transportation activities in each school district for all pupils transported or eligible for transportation will be provided. Records of buses purchased along with an analysis of cost, capacity, type, manufacturer and percent of State aid to districts will be kept. A profile record of each bus used in transporting pupils will be available for reference. In addition, there will be developed complete maintenance cost data summaries, a data bank on bus driver personnel, a statistical system for monitoring accident reports, a maintenance digest, and a management index. The approximate number of students to be served by this project is 75,685, covering a grade span from kindergarten through grade 12, with children from both public and nonpublic schools participating.

Further information: Project Director, ESEA, Title III, Hamilton County Board of Education, 325 East Central Parkway, Cincinnati, Ohio 45202

217. ES100232

IN-SERVICE EDUCATION MODELS FOR TEACHERS K–12

Project No. 52–69–0004

Amount sought $309,173

Descriptors—Kindergarten Children, Elementary School Students, Secondary School Students, Teaching Models, Inservice Teacher Education, Data Processing, Program Evaluation

The competence of an educational team will be upgraded through continuous on-site updating and re-education in order to provide quality education for all children. Effective techniques for updating both professional and nonprofessional educational personnel will be determined. ADP will be evaluated for its present and potential use for instructional and administrative functions in the schools served. The feasibility of highly specialized training for on-line staff in the areas of early childhood education and the educationally handicapped will be determined. The relationship of program, attitude, and staff to the regional drop-out rate will be studied. Existing and potential in-service educational programs will be evaluated. Approximately 585 persons, including public and private schoolchildren in kindergarten through grade 12, adults, and out-of-school youth will participate in the project.

Further information: Project Director, ESEA, Title III, Oak Ridge Schools, 115 Milan Way, Oak Ridge, Tennessee 37830

218.

STUDENT COMPUTER ORIENTED PROGRAM-EDUCATION (SCOPE)

Board of Education of the Youngstown City School District, Youngstown

OE No. 67–4512 (7) Mini-Grant Project

Amount sought $25,000

Plans will be made for the operation of an educational data processing center. A total educational information system supporting the instructional and management functions of 16 public and nonpublic school systems in Mahoning County will be developed. Counties served: Mahoning.

Further information: J. H. Wanamaker, Superintendent of Schools, Board of Education of the Youngstown City School District, 20 West Wood Street, Youngstown, Ohio 44503. (216) 743-1151

219.

EDUCATIONAL INFORMATION SYSTEM PILOT PROJECT

School District No. 422, Cascade

OE No. 67–4568–7 Mini-Grant Project

Amount sought $25,000

A program will be undertaken to demonstrate the feasibility of a statewide educational information system, to acquaint State educators with the potentials of data processing, and to develop guidelines for the changeover to a computer-based information system. Counties served: Valley

Further information: Jerry L. Evans, Superintendent of Schools, Box 291, Cascade, Idaho 93611. (208) 382-3511

220.

FEASIBILITY STUDY OF INFORMATION RETRIEVAL SYSTEMS

Decatur, Alabama

OE No. 67–04703 (7)

Amount sought $24,720

Counties served: Morgan

Further information: H. R. Leeman, Superintendent, Decatur City Schools, 210 Wilson Street, N.E., Decatur, Alabama 35601. (205) 353-6731

DESCRIPTION OF SAMPLE ENTRY

FOR

ELEMENTARY AND SECONDARY EDUCATION ACT—TITLE IV

COOPERATIVE RESEARCH ACT

An identification number assigned sequentially to projects in this publication.

221.

An identification number sequentially assigned to projects which appear in **Current Project Information.**

EP000009

Total Federal support.

$137,988

Title of the project.

SPEECH AND LANGUAGE THERAPY UNDER AN AUTOMATED STIMULUS CONTROL SYSTEM

Individuals responsible for conducting the project.

Investigator—Garrett, Edgar R.

Organization responsible for conducting the project.

New Mexico State University, University Park

An administrative control number assigned by the National Center for Educational Research and Development.

Bureau Number—BR-5-5046 Prop Date—12 Apr 65

Date proposal was submitted for evaluation.

Organizational unit responsible for administration of the project.

Division of Research B.E.H.

Congressional district location of organization conducting the project.

New Mexico Congressional District No. 2 at large

USOE grant or contract number.

Contract—OEC-6-10-193

Funding provided in particular fiscal years.

FY66—$66,091. FY67—$62,675. FY68—$9,232.

Terms describing the subject of the project, taken from the **Thesaurus of ERIC Descriptors.**

Descriptors—Autoinstructional Programs, Language Development, Programed Instruction, Speech Improvement. Stimulus Devices, Adult Programs, Audiolingual Methods, Clinics, Illinois Test of Psycholinguistics, Information Processing, Language Instruction, Linguistics, Mental Retardation, Pilot Project, Retarded Children, Speech Therapy, Task Performance, Templin Darley Tests of Articulation, Templin Short Test of Sound Discrimination

Starting date and estimated completion date of the project.

Start date 09-01-65 End date 01-31-68

Descriptive abstract of the project.

Programed instruction based upon stimulus control will be studied for application to the speech and language disorders of adults and children. The application will be made through an Automated Speech Correction System (ASCS) and supervised by school personnel other than speech therapists. Instruction provided by the ASCS should be effective in producing marked changes to functional misarticulation over a period of time. Influences and changes will be noted in the articulation of mental retardates and in the articulation and/or verbal linguistic function of both childhood and adult aphasics. The data collected during the experiments will be analyzed in linguistic and information theory terms. A permanent audiotape record will be made of the performance of each subject using wide area telephone service. An electronic counter and a digital computer will be used for automatic data reduction. The final statistical analysis will be made on an IBM 1620 computer. Planned duration of the program is 26 months.

Elementary and Secondary Education Act-Title IV

Cooperative Research Act

221. EP000009
$137,988
SPEECH AND LANGUAGE THERAPY UNDER AN AUTOMATED STIMULUS CONTROL SYSTEM
Investigator—Garrett, Edgar R.
New Mexico State University, University Park
Bureau Number—BR–5–5046 Proposal date—12 Apr 65
Division of Research BEH
New Mexico Congressional District No. 2 at large
Contract—OEC–6–10–193
FY66—$66,091. FY67—$62,675. FY68—$9,232.
Descriptors—Autoinstructional Programs, Language Development, Programed Instruction, Speech Improvement, Stimulus Devices, Adult Programs, Audiolingual Methods, Clinics, Illinois Test of Psycholinguistics, Information Processing, Language Instruction, Linguistics, Mental Retardation, Pilot Project, Retarded Children, Speech Therapy, Task Performance, Templin Darley Tests of Articulation, Templin Short Test of Sound Discrimination
Start date 01 Sep 65 End date 31 Jan 68

Programed instruction based upon stimulus control will be studied for application to the speech and language disorders of adults and children. The application will be made through an Automated Speech Correction System (ASCS) and supervised by school personnel other than speech therapists. Instruction provided by the ASCS should be effective in producing marked changes to functional misarticulation over a period of time. Influences and changes will be noted in the articulation of mental retardates and in the articulation and/or verbal linguistic function of both childhood and adult aphasics. The data collected during the experiments will be analyzed in linguistic and information theory terms. A permanent audiotape record will be made of the performance of each subject using wide area telephone service. An electronic counter and a digital computer will be used for automatic data reduction. The final statistical analysis will be made on an IBM 1620 computer. Planned duration of the program is 26 months.

222. EP000082
$101,546
DEVELOPING NEW MATERIALS FOR HIGH SCHOOL GEOMETRY
Investigator—Scott, Dana S.
Stanford Univ. Calif.
Bureau Number—BR–5–0544 Proposal date—30 Nov 64
Instructional Materials and Practices Branch, DCVR
California Congressional District No. 10
Contract—OEC–6–10–021
FY66—$50,354. FY67—$51,192.
Descriptors—Calculus, Geometric Concepts, High School Students, Mathematics Instruction, Superior Students, California, Geometry, Mathematical Concepts, Mathematical Enrichment, Programed Instruction, Programed Materials
Start date 01 Jul 65 End date 30 Jun 67

Material on geometric transformations in ways suitable for study by high school teachers and superior students will be developed and organized. Materials will be prepared for teaching transformations and will be tested in a computer based laboratory. In this situation a student will be seated in a booth containing a typewriter keyboard, a microfilm display unit, and a cathode ray tube display unit. By touching the cathode tube with a special light pen or by typing simple directions, the student can change the position of the figure on the screen, introduce or eliminate parts and identify points and lines in answer to a question. After the machine program for the sequence of lessons has been prepared, it will be tested on selected high school students and teachers. Parallel written materials will be produced for use without the highly specialized machine. The course will consist of approximately 30 lessons of 1 hour each. The most important gain in introducing transformations is

expected to be the practice that students will have in working with functions.

223. EP000127
$152,421
COMPUTER SCIENCE INSTRUCTION IN ELEMENTARY GRADES
Investigator—Starkweather, J. A.
California Univ., San Francisco
Bureau Number—BR–5–0652 Proposal date—10 Aug 65
Instructional Materials and Practices Branch, DESR
California Congressional District No. 6
Contract—OEC–6–10–131
FY66—$57,159. FY67—$76,212. FY68—$19,050.
Descriptors—Computers, Curriculum Development, Elementary Education, Elementary Grades, California, Computer Programs, Elementary School Students, Elementary School Teachers
Start date 01 Sep 65 End date 31 Dec 67

The use of a small digital computer for problem solving using different ability levels of pupils in grades four through eight will be evaluated. Concern for instructional content will not be relevant to the study design. Specifically, the objectives will be to construct procedures for computation of both numerical and non-numerical problems and to investigate the characteristics of a computer programming language which can best develop curriculum materials and teaching techniques. A group of volunteer elementary teachers will be introduced to a computer language which makes use of natural English expression. Teachers will then introduce content appropriate to their own classroom situation and prompt their pupils to attempt to construct questions and evaluate computer responses. Each child will be exposed to the computer by developing programs. Evaluation will be conducted to determine the effect of computer instruction on each student's ability to handle problems and to develop logical and original solutions. This investigation will further knowledge about methods of developing algorithms using the computer as a device for immediate testing of logical thought as well as knowledge of specific information.

224. EP000142
$227,723
DEVELOPMENT OF MATHEMATICAL CONCEPTS IN CHILDREN
Investigator—Suppes, Patrick
Stanford Univ., Calif.
Bureau Number—BR–5–0679 Proposal date—20 Nov 61
Instructional Materials and Practices Branch, DESR
California Congressional District No. 10
Contract—OEC–3–10–009
FY64—$45,544. FY65—$45,544. FY66—$45,544. FY67—45,547
Descriptors—Concept Formation, Mathematical Concepts, Mathematics Instruction, Stimulus Devices, Visual Discrimination, California, Elementary School Students, Markov Process, Mathematics Materials, Stanford, Visual Perception
Start date 01 Jul 62 End date 31 Aug 67

Stimulus sampling theory in children's development of mathematical concepts will be analyzed. The factors of study will be as follows—(1) acquisition and transfer of elementary concepts of set theory by children 5 to 8 years of age. (2) acquisition and transfer of simple geometric concepts by children 4 to 9 years of age, and (3) learning of mathematical proofs by children 6 to 9 years of age. Experiments will involve 30 to 100 subjects each, with each subject being required to make a minimum of 30 to 100 responses. Series of stimulus presentations will be programed on IBM cards, read out by an IBM reader connected with an 026 IBM punch, and relayed by a television camera which will pick up the stimulus pattern from the card and display it on a television screen to the child. The stimulus display response made by the child, and the connection procedure utilized for each trial will then be punched on data cards. Other experimental equipment to be used will include time interval meters to measure the reaction time for each trial and apparatus for electrical or photographic recording of eye movements made by the subject in the process of making a response. Mathematical and statistical methods of analysis to be used will employ methods appropriate to Stochastic Processes, particularly Markov Processes and chains of infinite order with a finite number of states.

225. EP000144
$920,166
AN AUTOMATED PRIMARY-GRADE READING AND ARITHMETIC CURRICULUM FOR CULTURALLY DEPRIVED CHILDREN
Investigators—Atkinson, Richard C., Suppes, P.
Stanford Univ., Calif.
Buerau Number—BR–5–0684 Proposal date—20 Mar 64
Instructional Materials and Practices Branch, DESR
California Congressional District No. 10
Contract—OEC–5–10–050
FY65—$156,276. FY66—$583,670. FY67—$180,220
Descriptors—Behavioral Sciences, Computer Assisted Instruction, Cultural Disadvantagement,

Curriculum Research, Primary Education, Autoinstructional Methods, Curriculum Development, Disadvantaged Youth, Instructional Materials, Learning Difficulties, Mathematics Curriculum, Phonotape Recordings, Reading Programs, Sequential Learning

Start date 01 Jul 64 End date 31 Dec 67

Detailed behavioral analysis will be undertaken to identify the points in beginning reading and mathematics curriculums that are particularly difficult for culturally deprived children in the primary grades to learn. Specifically, the investigation will apply to obstacles encountered by these children in acquiring basic skills in reading and mathematics, and the use of behavioral analysis and automated devices as means to overcome these obstacles. Emphasis will be placed on the preparation of available written materials in a sequential order on the preparation of auditory material to accompany the written materials. Behavioral analysis of student responses to curriculums will be accomplished by automated instrumentation. Both visual and auditory curriculum materials will be presented to pupils individually. Appropriate instruments are to be provided for recording pupil responses and response times. Given response sequences will be applied to methods of analysis much used in mathematical learning theory. By providing behavioral analysis in a setting that will be designed to accommodate individual differences, learning difficulties should be minimized.

226. EP000172

$93,246

A COMMUNICATIONS SYSTEM FOR HIGHER EDUCATION

Investigator—Mills, M. M.

California State Coll., Dominguez Hills

Bureau Number—BR–5–0791 Proposal date—06 Jan 65

Research Branch, DHER

California Congressional District No. 38

Contract—OEC–10–300

FY65—$19,974. FY66—$47,761. FY67—$25,511.

Descriptors—College Administration, College High School Cooperation, Computer Oriented Programs, Computer Programs, Colleges, Administration, Program Administration, School Administration, Administrative Policy, Administrative Personnel, Educational Experiments, Educational Facilities, Educational Equipment, Educational Resources, Systems Analysis, Systems Approach, Systems Concepts, Systems Development

Start date 01 Mar 65 End date 30 Jun 67

The primary goal of this project is to develop an operating information system at the California State College at Palos Verdes in order that instructional and management decisions may be based upon data which are pertinent, timely, and comprehensive. This information system will be based upon an analysis of both the internal requirements of the college and the external requirements as they relate to the total State college system and other Governmental and non-governmental agencies which request or require information. The research has been so designed that the information system can serve as a data resource which can be utilized in educational research for decisionmaking. The principle underlying the project is three-dimensional. The information will be classified, it will be stored in such a way as to be readily quantified, and the system will cause this information to be evaluated in reference to its magnitude and its relationship to other information similarly stored.

227. EP000200

$272,130

A DEVELOPMENTAL STUDY OF MEDICAL TRAINING SIMULATORS FOR ANESTHESIOLOGISTS

Investigator—Abrahamson, Stephen

University of Southern California, Los Angeles

Bureau Number—BR–5–0917 Proposal date—66

Instructional Materials and Practices Branch, DHER

California Congressional District No. 21

Contract—OEC–6–10–135

FY66—$131,035. FY67—$136,731. FY68—$4,364.

Descriptors—Computers, Educational Equipment, Medical Education, Simulation, Student Evaluation, Anesthesiology, Electronic Equipment, Los Angeles, Student Reaction, Student Volunteers

Start date 01 Sep 65 End date 31 Jan 68

This experimental and developmental project will demonstrate the practicability of using a computer (which simulates a patient) to teach medical students necessary skills in administering drugs without discomfort and danger to a patient. A room, closely resembling an actual operating amphitheater, will be used to house the computer-controlled, patient machine. About 15 first-year residents in anesthesiology will be the subjects in a test of learning which results from student interaction with the machine. Toward the conclusion of their training the residents will be observed and tested in an actual operating room. They will be compared with a control group trained in a traditional manner. Student and faculty competence will be determined by interviews. Avoidance of discomfort and harmful errors with respect to the patient-machine will be registered by another computer. Information about the system will be

provided by inspections of other anesthesiologists. administrative personnel, and faculty members of California medical schools. The results will be published and presented at appropriate meetings.

228. EP000265
$149,696
A PROJECT TO DEVELOP AND EVALUATE A COMPUTERIZED SYSTEM FOR INSTRUCTIONAL RESPONSE AND ANALYSIS
Investigator—Easley, J. A.
Illinois University, Urbana
Bureau Number—BR–5–1179 Proposal date—65
Instructional Materials and Practices Branch, DESR
Illinois Congressional District No. 22
Contract—OEC–6–10–184
FY66—$73,970. FY67—$75,726.
Descriptors—Computer Oriented Programs, Instructional Materials, Programed Instruction, Systems Analysis, Systems Development, Computer Programs
Start date 01 Oct 65 End date 30 Sep 68

A computerized system will be developed and tested for diagnosing faults in lesson materials, including texts, workbooks, teacher handouts, and tests. The procedure will be designed to provide detailed feedback to authors on command, thus facilitating an analysis of student response to his materials. The data provided will serve as a basis for revision and improvement of the materials. The research and development procedures will consist of adapting a computer-based instructional system to achieve the capability of supplying diagnoses of student lesson materials. The adaptation of the system and the development of system programs will result in a "system for instructional response analysis." One phase will be the development of a control logic for use with general text materials. Authors and evaluators in a broad range of subject-matter areas will collaborate in developing the system of diagnosis and testing the capability of the system.

229. EP000333
$74,081
ANALYSIS OF ESSAYS BY COMPUTER
Investigator—Page, Ellis B.
Connecticut Univ., Storrs, Bur. of Educ. Research
Bureau Number—BR–6–1318 Proposal date—08 Apr 66
Basic Studies Branch, DESR
Connecticut Congressional District No. 2
Contract—OEC–1–6–061318–1214
FY66—$74,081.
Descriptors—Composition (Literary), Computer Programs, Data Analysis, Essays, Grading, Linguistics, Measurement, Rating Scales, Writing Skills
Start date 16 Jun 66 End date 01 Oct 67

The proposed work, entitled "Project Essay Grade II," will continue research related to the computer analysis of English exposition. In general terms, the objectives of this program are to—(1) further identify important characteristics of student prose which are analyzable through specially devised computer programs, (2) develop computer programs for measurement of these qualities or related variables as they occur in school essays, (3) analyze the computer-generated objective data in relation to subjective measures of the essay dimensions, (4) develop through this procedure greater understanding of the human rating process as applied to objectively describable prose characteristics, (5) study those aspects of essay description which appear most promising for useful feedback to teachers and students, and explore the feasibility of computer commentary about student essays, and (6) set forth larger strategies for the more promising future explorations of computer analysis of essays. Hundreds of student essays on assigned topics will be rated independently on content, style, organization, mechanics, and overall quality. These ratings will form the basis of the computer analysis programs to be developed.

230. EP000336
$125,320
A STUDY OF SOCIAL DIALECTS IN DETROIT
Investigator—Shuy, Roger W.
Michigan State University, East Lansing
Bureau Number—BR–6–1347 Proposal date—25 Aug 65
Research Branch, DESR
No. 6, Michigan
Contract—OEC–3–6–061347–0636
FY66—$121,540. FY67—$3,780.
Descriptors—Linguistics, Dialect Studies, Language Research, Social Differences, Language Patterns, Speech Habits, Urban Culture
Start date 22 Mar 66 End date 31 Aug 67

The linguistic features (pronunciation, grammar, vocabular, and syntax) of the various English-speaking subcultures of Detroit will be delineated on this research program. In addition, it will—(1) seek efficient means of gathering language data in cities, (2) investigate effective uses of computers in the storing, retrieval, and analysis of language data in an urban dialect study, (3) provide actual language data for practical applications in the classroom, and (4) determine the linguistic

clues to social class, the function of language in establishing social boundaries, and the processes of language in an urban area. After a developmental phase and the training of field workers are completed, language data will be gathered by structured linguistic interviews, questionnaires, conversational interviews, multiple choice tests, and tape recording. Consultants and staff will determine analysis techniques and procedures during the developmental stage of the project.

231. EP000344
$639,726
EDUCATIONAL INFORMATION PROJECT
Investigator—Foley, Walter J.
Iowa Univ., Iowa City.
Bureau Number—BR–6–1502 Proposal date—Oct 65
Organization and Administration Studies Branch, DESR
Iowa Congressional District Number 1
Contract—OEC–3–6–061502–0429
FY66—$435,837. FY67—$123,889. FY68—$80,000.
Descriptors—Computers, Educational Programs, Educational Research, Educational Resources, Information Dissemination, Information Processing, Information Retrieval, Information Storage, Instructional Materials, Resource Centers, Resource Materials
Start date 02 Feb 66 End date 31 Aug 69

This project will develop, field test, and initiate a system in which a central agency can gather, process, integrate and disseminate educational information. This information will be used by students, teachers, and school districts from the elemtary school population in an entire state. It will be designed to continue the Cardpac system of educational accounting begun under grant E–301 dated April 1964. The procedures are summarized into four phases—(1) the proposal stage involving the design, consultation, and collating of information, (2) the developmental stage including activities such as the development and review of related studies, (3) the administration stage, and (4) the analysis stage which allows for the feedback of information about pupils at the local, district, and State levels. (HB)

232. EP000351
$178,414
RESEARCH TRAINING AND DEVELOPMENT PROGRAM AT UNIVERSITY OF NORTHERN COLORADO
Investigator—Schmid, John
Institution—University of Northern Colorado, Greeley
Bureau Number—BR–6–1671
Responsible Br.—Research Training Branch, DHER.
Colorado Congressional District Number 4
Grant—OEG–0–70–3941
FY66—$42,208; FY67—$50,771; FY68—$37,235; FY69—$30,700; FY70—$17,500
Descriptors—Data Processing, Doctoral Degrees, Educational Research, Graduate Study, Program Development, Researchers, Research Methodology, Statistical Analysis
Start date 1 Jun 66 End date 31 Aug 71

The specific objective of this proposal is to improve the quality of the Ph.D. program in educational measurement and research at Colorado State college by adding a sociologist, a computer scientist, a computer programmer, and a supporting secretary to the staff. A secondary objective of the project is to maintain awareness of current developments in educational research and training through provision of special funds for travel to other institutions. This program will encourage and support qualified students who are interested in pursuing careers in this field. The Ph.D. program will provide the candidate with the theoretical, statistical, measurement, and data processing background to—(1) teach educational measurement, statistics, and research at the college and university level, or (2) conduct and supervise educational research in school administrative units at State or local levels, in educational research laboratories or centers, and in colleges and universities.

233. EP000352
$185,150
A GRADUATE PROGRAM TRAINING EDUCATIONAL RESEARCHERS FOR RURAL AMERICA
Investigator—Krahmer, Edward
Institution—North Dakota Univ., Grand Forks.
Bureau Number—BR–6–1694
Responsible Br.—Research Training Branch, DHER
North Dakota Congressional District Number 1
Grant—OEG–0–70–3929
FY67—$67,300; FY68—$59,200; FY69—$52,350
Descriptors—Doctoral Degrees, Educational Research, Graduate Study, Researchers, Research Methodology, Rural Education

Start date 01 Jun 66 End date 31 Aug 71

The major emphasis of the project will be the training of doctoral students for educational research in rural areas. A master's degree program, however, will be offered as well. The first objective of this training will be to develop research personnel, having marketable academic backgrounds. Both the master's and doctoral programs will include an extensive resarch minor and an education major. The minor programs will include—(1) research methods, (2) statistical analysis of data, (3) educational measurement and (4) computer techniques. Presently existing majors will be offered in—(1) Educational Administration, (2) Elementary and Secondary Education, (3) Counseling and Guidance, and (4) Business Education, or in such educationally related fields as Psychology, Sociology, and Economics. Secondary objectives will be to—(1) provide sufficient researchers to meet needs of a Tri-State region and other rural areas, (2) make available researchers to assist with research activities beyond the scope of local institutions, and (3) provide continuous evaluation of the training program. From 16 to 34 candidates for both master's and doctoral degrees will be enrolled in the program each year, initially. These activities should fill a significant gap in the field of educational research by supplementing research efforts of major urban institutions.

234. EP000362

$1,724,263

THE DEVELOPMENT AND EVALUATION OF A SCIENCE CURRICULUM FOR GRADES SEVEN, EIGHT, AND NINE

Investigator—Burkman, Ernest

Institution—Florida State Univ., Tallahassee

Bureau Number—BR-6-1762 Proposal date—2 Dec 65

Responsible BR—Instructional Materials and Practices Branch, DESR.

Florida Congressional District Number 2.

Contract—OEC-2-6-061762-1745

FY66—$416,132; FY67—$219,174; FY68—$655,658; FY69—$266,596; FY70—$166,703

Descriptors—Achievement, Aptitude, Computer Assisted Instruction, Curriculum Development, Instruction, Junior High Schools, Science Curriculum, Science Education, Science Programs

Start date 20 Jun 66 End date 31 Aug 70

The development and evaluation of a coordinated science curriculum for grades seven through nine is planned. The objectives are—(1) to instill an understanding of science, scientists, and the scientific enterprise, (2) to develop an understanding of selected principles of science, and (3) to increase the student's facility in using certain intellectual skills related to the scientific process. The subjects will be physical science for the seventh and eighth grades and earth and biological sciences for the ninth grade. It is planned to utilize computer-assisted instructional methods to analyze individual student performance on each step of the curricular structure and correlate response patterns with measures of achievement and specific attitudes.

235. EP000363

$203,715

STUDY OF SCHOOL INTEGRATION

Investigator—Pettigrew, Thomas F.

Harvard Univ., Cambridge, Mass.

Bureau Number—BR-6-1774 Proposal date—3 Jun 66

Basic Studies Branch, DESR.

Massachusetts Congressional District Number 8

Contract OEC-1-6-061774-1887

FY66—$96,908; FY67—$75,454; FY68—$31,353

Descriptors—Computer Oriented Programs, Computer Programs, Demography, Ecological Factors, Ecology, Integration Effects, Integration Studies, Negroes, Opinions, Psychological Studies, Public Opinion, Racial Integration, Rural Population, School Integration, Urban Population

Start date 27 Jun 66 End date 30 Sep 69

An attempt will be made in this study to develop empirically-derived models of school integration processes in both the south and the urban north. These social psychological models will combine ecological and demographic census materials with opinion survey results. An attempt will be made to understand the integration patterns of schools in a wider perspective of structural and opinion change in American race relations. The general design of the research will involve the accumulation, organization, and formulation of a computer data system which will process a vast array of both ecological and opinion data. The operational system will be used to test rival theories, answer specific and practical questions, and feed in new data relevant to the integration process. All counties which had 200 or more Negroes in 1960 will be the units of analysis for the South. Voting precincts within cities of over 25,000 people will be the units of analysis for the urban North.

236. EP000374
$12,934
STATISTICAL LABORATORY DEVELOPMENT PROGRAM
Investigator—Bock, R. Darrell
Chicago Univ., Ill.
Bureau Number—BR–6–1934
Research Training Branch, DHER
Illinois Congressional District Number 2
Grant—OEG–3–6–061934–1084
FY66—$12,934.
Descriptors—Computer Based Laboratories, Educational Research, Graduate Study, Laboratories, Researchers, Research Methodology, Statistical Studies, Supervisors
Start date 01 Jun 66 End date 30 Jun 67

The problem of concern in this proposal is how to increase the capacity of the Department of Education to train educational researchers. A statistical laboratory training program over a 3-year period is proposed as part of the solution. Purposes of the program are—(1) to establish a position for and select a statistical laboratory supervisor (a person with substantial training in statistical methods and computer applications), (2) to develop an effective relationship between the supervisor and faculty of the department responsible for academic instruction in statistical methods, (3) to develop procedures by which the laboratory supervisor can most effectively aid graduate education students, (4) to improve the physical facilities of the statistical laboratory, and (5) to defray part of the operating costs connected with the expected increase of research trainees during the development of the program. This program will be related to the graduate research training program previously proposed by the Department of Education.

237. EP000391
$132,700
GRADUATE TRAINING PROGRAM FOR RESEARCH METHODOLOGISTS
Investigator—Millman, Jason
Institution—Cornell Univ., Ithaca, N.Y. School of Education
Bureau Number—BR–6–2170
Responsible Br.—Research Training Branch, DHER.
New York Congressional District Number 33
Grant—OEG–0–70–3957
FY66—$24,000; FY67—$24,300; FY68—$26,200; FY69—$29,100; FY70—$29,100
Descriptors—Computers, Doctoral Degrees, Educational Research, Graduate Study, Psychology, Researchers, Research Methodology, Statistical Studies
Start date 24 May 66 End date 31 Aug 71

A plan to train researchers in research methodology on a university-wide basis is proposed. The students eligible for support will include doctoral candidates majoring in one of the following—(1) mental measurement in the department of psychology, (2) research methodology in the field of education, (3) any concentration in the field of statistics, (4) any concentration in the field of computer science. Training will be provided through the collaboration of Cornell faculty members having specializations in one of the four fields of concentration. In addition to the University-wide base of training, unique features of the program include a supervised apprenticeship on research methodology problems, course work in intermediate to advanced mathematics, the opportunity for teaching at the university level, and the requirement that the student's dissertation deal primarily with a methodological question. The grant-supported part of the program, as planned, will prepare six researchers during a 5-year period and will provide initial support for six additional students who will commence training toward the end of the 5-year period.

238. EP000413
$18,900
TRAINING FOR RESEARCH IN SOCIOLOGY OF EDUCATION
Investigator—Sieber, Sam D.
Columbia Univ., New York, Bur. of Appl. Soc. Res.
Bureau Number—BR–6–2841 Proposal date—66
Research Training Branch, DHER
New York Congressional District No. 20
Grant—OEG–1–6–062841–1794
FY66—$18,900
Descriptors—Graduate Study, Research Methodology, Research Projects, Researchers, Core Curriculum, Data Processing, Educational Research, National Institute of Mental Health, Sociology
Start date 17 Jun 66 End date 30 Sep 67

A 5-year training program will be established to develop research administrators in educational research and sociological researchers in education. Nine students in first through third years of graduate training will be selected for the first full year, with an additional three students at the fourth year level in each ensuing full year. The program

entails—(1) trainee supervision and program coordination by a training director, (2) a weekly seminar for discussion of trainees' experiences on projects and in the field, trainees' research papers, computer data processing and data bank utilization, and ongoing projects at the Bureau of Applied Social Research, Columbia University, (3) apprenticeships of students on research projects with requirement of writing a paper based on these projects (or independent research for dissertation students), (4) a technical data specialist to organize research materials and assist students in data retrieval and computer use, (5) field work in educational settings, (6) partial integration with the National Institute of Mental Health Training program in methodology, and (7) a core curriculum, including a new required course in the sociology of education.

239. EP000431
$163,800
INSTITUTIONAL RESEARCH
Investigator—Doi, James I.
Institution—Michigan Univ., Ann Arbor
Bureau Number—BR-6-2797
Responsible BR.—Research Training Branch, DHER.
Michigan Congressional District Number 2
Grant—OEG-0-70-3531
FY66—$17,500; FY67—$28,100; FY68—$29,000; FY69—$46,800; FY70—$42,400
Descriptors—Doctoral Degrees, Educational Programs, Educational Research, Graduate Study, Leadership, Researchers, Research Methodology, Research Skills
Start date 23 Jun 66 End date 31 Aug 71

The major goal is the preparation of persons for leadership positions in institutional research and planning in colleges, universities, and related educational agencies. In addition to the competencies expected of all doctoral students, the institutional research trainee should have—(1) knowledge of the forms and functions of institutional research in colleges and universities, including the role in decisionmaking, planning, and administrative structure and organization, (2) knowledge and skill in the design and conduct of a wide range of studies relating to institutions of higher learning, (3) knowledge of literature on organizational change, and (4) skill in the application of computer technology to institutional research. The program is based on 6 trainees each year, and a total of 24 completing individual 2-year programs of training. The program will lead to a doctoral degree (Ph.D. or ED.).

240. EP000474
$7,620
STUDY OF A NEW APPROACH TO CLASS SCHEDULING PROBLEMS
Investigator—Kent, Allen
Pittsburgh Univ., Pa., Knowledge Avail Sys. Ctr.
Bureau Number—BR-5-8199 Proposal date—24 May 65
Research Branch, DHER
Pennsylvania Congressional District No. 14
Contract—OEC-5-10-334
FY65—$7,620.
Descriptors—School Registration, Admission (School), College Administration, Computer Programs, Scheduling, Class Size, Systems Analysis, Systems Development, Pittsburgh, Beekley Insite
Start date 01 Jun 65 End date 31 Dec 66

The scheduling and registration of college students is a major problem today. The use of computers in school scheduling has shown various indications of being unable to react in real time and at low cost to changing parameters. The need, therefore, is for a low cost flexible system capable of examining the gamut of variables at one time, and of responding rapidly to unexpected changes that become evident only during registration. The purpose of this project is to investigate the use of such a system, the prototype Beekley Insite Device, in school scheduling and registration applications. Instead of creating a mathematical model of a theoretical school scheduling problem, the scheduling and registration procedures of the University of Pittsburgh Graduate School of Library and Information Sciences will be examined initially. Course prerequisites and student schedule punched mylar tapes will be prepared for analysis on the Beekley Insite Device, and proposals for both student schedules and courses will be either verified or negated. Potential ramifications resulting from the manipulations of the variables will be studied in an attempt to optimize the schedules and to determine the applicability of such a system to the real-time demands of student registration.

241. EP000566
$106,678
FAMILY AND SCHOOL INFLUENCE ON THE EDUCATIONAL ASPIRATIONS OF WORKING CLASS AND MIDDLE CLASS NINTH GRADE BOYS
Investigator—Wallin, Paul
Stanford Univ., Calif.

Bureau Number—BR-5-0542 Proposal date—31 Aug 64
Basic Studies Branch, DESR.
California Congressional District Number 10.
Contract—OEC-6-10-004
FY66—$47,345; FY67—$59,093; FY68—$240
Descriptors—Aspiration, Dropout Prevention, Educational Research, Grade 9, Interviews, Males, Middle Class Parents, Negro Students, One Parent Family, Parental Aspiration, Prediction, Surveys
Start date 01 Jul 5 End date 31 Mar 69

The relationships between the educational aspirations of ninth grade boys and those aspirations which their parents have for them will be studied in the proposed program. The study will also investigate the conditions under which parents' aspirations are transmitted to these boys. Researchers will also collect data which will be evaluated after 5 years for its utility in predicting high school completion, college attendance, and completion of the first 2 years of college. Questionnaire data will be obtained from approximately 1,400 ninth grade boys from 5 high schools selected to provide a representative sample of Negro and white, working class and middle class students. The parents of about 240 students will be interviewed both separately and simultaneously. Interviews with parents in about 60 broken families will be conducted. All data collected will be processed by Electronic Computer Techniques. (WB)

242. EP000619
$30,000
PROGRAM FOR TRAINING IN COMPUTER AND MULTIVARIATE APPLICATIONS TO EDUCATIONAL RESEARCH
Investigator—Cooley, William W.
American Inst. for Research in Behavioral Sciences
Bureau Number—BR-6-2084 Proposal date—66
Research Training Branch, DHER
Pennsylvania Congressional District No. 14
Grant—OEC-1-6-062084-1789
FY66—$30,000
Descriptors—Computer Oriented Programs, Doctoral Degrees, Graduate Study, Research Methodology, Researchers, Data Processing, Educational Programs, Educational Research, Evaluation Methods, Factor Analysis, Information Processing, Pennsylvania, Pittsburgh, Project Talent, Seminars, Statistical Analysis
Start date 01 Sep 66 End date 30 Jun 67

Postdoctoral training over a 4-year period is planned to acquaint educational researchers with the applications of computer systems. Each trainee selected will complete an individual research project and a series of seminars. Topics of the individual seminars will include research methods, computer applications in educational research, statistical analysis, research methodology, and a case study of a previous research project named "Project Talent."

243. EP000662
$10,513
A BIBLIOGRAPHY OF ENGLISH AND AMERICAN LITERATURE DISSERTATIONS ACCEPTED BY AMERICAN, BRITISH, AND GERMAN UNIVERSITIES FROM 1864–1964
Investigator—McNamee, Lawrence F.
East Texas State University, Commerce
Bureau Number—BR-5-8246 Proposal date—26 May 65
Comparative Research Branch, DHER
No. 4, Texas
Contract—OEC-5-10-355
FY65—$6,579; FY66—$3,934
Descriptors—Bibliography, Doctoral Degrees, Literature, English Literature, American Literature, Computer Programs, Data Collections, Commerce, Texas, Germany, Great Britain
Start date 01 Jun 65 End date 30 Nov 66

A comprehensive bibliographic effort will be undertaken, compiling a listing of all literature dissertations (English and American) that have been accepted by American, British, and German universities over the last 100 years. Listings of this work will be arranged under 22 major headings, including Anglo-Saxon, Linguistics Middle-English, Chaucer, Shakespeare, Renaissance, Milton, the Drama, and the Novel. Two IBM cards will be made for each dissertation and lists prepared by machine processing for each respective university. These listings will then be sent to the universities, which granted degrees from the dissertations, for approval and additions. New cards will be punched from the resulting information and a final listing prepared and furnished to institutions on a world wide basis. This project should lead to new dissertations, and may even lead to a new field of study.

244. EP000711
$8,958
THE DEVELOPMENT OF A STUDENT ACCOUNTING SYSTEM
Investigator—Anderson, Gordon
University of Texas, Austin
Bureau Number—BR-5-8176 Proposal date—24 May 65

Research Branch, DHER
No. 10, Texas
Contract—OEC–5–10–341
FY65—$8,958.

Descriptors—Information Processing, College Students, Background, Psychological Testing, Academic Aptitude, Computer Programs, Questionnaires, Information Systems, Austin, Texas

Start date 01 Jun 65 End date 30 Nov 66

A system of recordkeeping for information about college students, including background data, psychological test scores, and past and current academic records will be developed in a form suitable for processing by computers. Information from the registrar of the University of Texas will be combined with data from the testing and counseling centers and with background information supplied by students on a specifically designed questionnaire. The latter will be in a form suitable for reading and automatic punching. The various items will be collated and read onto magnetic tapes.

245. EP000759
$40,731
DEVELOPMENT OF VERBAL SKILLS FOR CULTURALLY DEPRIVED CHILDREN
Investigator—Wittrock, M. C.
California Univ., Los Angeles
Bureau Number—BR–5–0598 Proposal date—27 Feb 65
Instructional Materials and Practices Branch, DESR
California Congressional District Number 28
Contract—OEC–6–10–303
FY66—$11,412; FY67—$25,904; FY68—$3,415

Descriptors—Communication Skills, Computer Programs, Concept Formation, Culturally Disadvantaged, Data Analysis, Developmental Tasks, Elementary Education, Experimental Programs, Learning Processes, Learning Theories, Verbal Communication, Verbal Development

Start date 01 Jun 66 End date 31 May 69

The use of distinctive verbal labels to teach concept formation in communication skills to culturally disadvantaged elementary pupils will be studied during the proposed research project. The research will be divided into two experiments, one using concepts from the subject's old response and its verbal label, and the other using new and complex concepts and relationships. Sample groups will be comprised of 150 culturally disadvantaged children ranging in age from 10 to 12 who will be randomly assigned to five groups of 30 subjects each. The 5 groups will include (1) the mediated generalization group, (2) the mediated discrimination response group, (3) the mediated discrimination stimulus group, (4) the no-label group, and (5) the no-task group. The various groups will receive different original and interpolated learning treatments and be tested for retention of learning. The second experiment will be similar to the first, but the task will be different and the concept more complex. Scores and data collected will be analyzed through use of multiple comparisons among means on an IBM 7094 computer.

246. EP000840
$185,421
TEACHING MATHEMATICS THROUGH THE USE OF A TIME-SHARED COMPUTER
Investigator—Richardson, Jesse O.
Massachusetts State Dept. of Education, Boston
Bureau Number—BR–5–0311 Proposal date—24 Aug 64
Instructional Materials and Practices Branch, DESR
Massachusetts Congressional District No. 9
Contract—OEC–5–10–320
FY65—$8,999; FY66—$162,786; FY67—$13,636

Descriptors—Computer-Based Laboratories, Digital Computers, Mathematics Instruction, Programed Instruction, Achievement, Cambridge, Curriculum Enrichment, Grade 11, Grade 6, Grade 9, Instructional Innovation, Massachusetts, Mathematical Enrichment

Start date 01 Jun 65 End date 31 Jan 67

A mathematical laboratory will be developed based on a time-shared digital computer. Specific characteristics of this computer-based laboratory will be—(1) a terminal teletypewriter connected to the computer and operated on a time-shared mode to give participating mathematics students the feeling of personally working the computer, and (2) the availability of the computer on a continuous, real-time basis to encourage students to engage extensively in voluntary extracurricular use of the computer terminals. Students at three levels of maturity (grades 6, 9, and 11) will participate. Experimental and control groups of approximately 25 subjects each will be used for data gathering exercises. The resulting data will be analyzed. It is believed that the findings will clearly show that the use of a computerized mathematics curriculum leads students to acquire a more thorough grasp of subject matter as measured by standard achievement tests.

247. EP000933
$35,942
RESEARCH TRAINING INSTITUTE FOR PERSONNEL OF THE STATE DEPARTMENTS OF EDUCATION
Investigator—Gregg, Russell T.
Wisconsin Univ., Madison
Bureau Number—BR–7–0602 Proposal date—67
Research Training Branch, DHER
Wisconsin Congressional District No. 2
Grant—OEC–3–7–070602–2979
FY67—$35,942

Descriptors—Data Processing, Educational Research, Institutes (Training Programs), Research Methodology, State Officials, Madison, Measurement Techniques, Program Administration, Research Skills, Researchers, Training
Start date 09 Mar 67 End date 14 Jul 67

The major purpose of the proposed research training institute is to improve the research knowledge and skills, and to stimulate the research interests of selected personnel of State Departments of Education in the midwest. The institute will be offered in two separate 2-week sessions spaced 6 weeks apart in order that participants may return to their positions during the interim period. Instruction and learning will be centered on (1) measurement in educational research, (2) research design and methodology, (3) automatic data processing, and (4) research administration. The institute program will consist of group instruction in the mornings and individual and small-group laboratory work in the afternoons. In the laboratory sessions, participants will be encouraged and assisted to apply research concepts and procedures to their on-the-job problems. Approximately 30 trainees will be recruited and selected by the U.S. Office of Education to participate in the institute. Evaluative data will be obtained primarily by means of trainee responses to a questionnaire.

248. EP000940
$19,878
THE RELATIONSHIP OF AUTOMATIC DATA PROCESSING TRAINING CURRICULUM AND METHODOLOGY IN THE FEDERAL GOVERNMENT
Investigator—Fast, James J.
Association for Educational Data Systems
Bureau Number—BR–7–1059 Proposal date—67
Instructional Materials and Practices Branch, DCVR
District of Columbia
Contract OEC–1–7–071059–3808
FY67—$19,878

Descriptors—Conferences, Data Processing, Federal Government, Instructional Technology, Training, Instructional Materials
Start date 15 May 67 End date 15 Jul 67

An invitational 5-day working conference on the relationship of automatic data processing (ADP) training curriculum and methodology in the Federal Government will be held in Washington, D.C. The ultimate objective of this conference is to make recommendations for the establishment of an effective and efficient ADP training program utilizing new instructional methodologies. This training program will concentrate on new multi-media approaches utilizing new technology, such as videotape, educational television, programed instruction and computer-assisted instruction. Topical specialists from outside the Federal Government and the Federal Government will be brought together for an indepth discussion. Additional resource specialists will serve on four panel sessions.

249. EP000945
$4,725
TRAINING INSTITUTE FOR RESEARCH PERSONNEL IN THE THEORY OF MULTIPLE REGRESSION FORMULATION OF PROBLEMS AND COMPUTER UTILIZATION
Investigator—Schmid, John
Colorado State College, Greeley
Bureau Number—BR–7–8318 Proposal date—11 Jan 67
Research Training Branch, DHER
Colorado Congressional District No. 4
Grant—OEC–1–7–078318–3714
FY67—$4,725

Descriptors—Computer Programs, Computers, Institutes (Training Programs), Research Skills, Teacher Education, Computer Oriented Programs, Educational Programs, Greeley, Research Tools, Researchers, Service Education, Special Education, Statistical Analysis, Statistical Studies
Start date 14 Aug 67 End date 19 Aug 67

An institute sponsored by Colorado State College will be established for educational researchers who have a basic knowledge of statistical processes but who have not yet become familiar with formulating and solving problems using multiple regression techniques with computers. The institute will accommodate 25 participants and the selection will be made to provide wide geographical representation for more rapid dissemination of modern research methodology. The institute will last for 1 week and, in addition to providing participants with the Persub Iterative Regression Program it will make

available (1) other complementary programs and (2) help in modifying these programs at the participant's local facilities.

250. EP000946
$6,838
TEACHING LIBRARY USE TO UNDERGRADUATE—COMPARISON OF COMPUTER-BASED INSTRUCTION AND THE CONVENTIONAL LECTURE
Investigator—Axeen, Marina E.
Illinois Univ., Urbana
Bureau Number—BR–E7–050 Proposal date—03 Nov 66
Regional Research, Office Associate Commissioner
Illinois Congressional District No. 22
Contract—OEC–3–7–070050–3131
FY67—$6,838.
Descriptors—Library Instruction, Computer-Assisted Instruction, Programed Instruction, Lecture, Teaching Techniques, Students, Library Science, Instructional Technology
Start date 01 Apr 67 End date 31 Aug 67

The purpose of this study is to explore the possibilities of using computer-based instruction as a medium for teaching the use of the library to undergraduates. Comparison of results will be made between the experimental group using a computer-based teaching system called PLATO (Programmed Logic for Automatic Teaching Operations) and the control group learning by the traditional lecture method. Statistical analysis will be made between the performance of the two groups to determine if computer-based instruction is just as effective, or more so, than the conventional method.

251. EP001009
$8,236
THE DESIGN AND IMPLEMENTATION OF INFORMATION SYSTEMS FOR PUPIL PERSONNEL SERVICES
Investigator—Walz, Garry R.
American Personnel and Guidance Assn., Wash., D.C.
Bureau Number—BR–7–0227 Proposal date—67
Research Training Branch, DHER
District of Columbia
Grant—OEC–2–7–070227–1641
FY67—$8,236
Descriptors—Counseling Services, Guidance Programs, Information Systems, Interdisciplinary Approach, Student Personnel Services, Simulation
Start date 10 Mar 67 End date 09 Apr 67

A special training project is to be held for 5 days preceding the annual convention of the American Personnel and Guidance Association. The training will focus upon (1) the development of an interdisciplinary conceptual base for pupil personnel work, (2) the use of tools for information searches including the use of the Eric clearinghouse for guidance and counseling, and (3) the design and implementation of an information system for use in programs of personnel services. The instructional format will include the use of lecture-demonstrations, laboratory sessions, team conferences, small group sessions, and simulation. Outcomes for the training are seen as (1) stimulation of interdisciplinary pupil personnel research, (2) widespread diffusion of information systems design, (3) dissemination of the scope and services of the Guidance and Counseling Eric Center and hence greater national use of the Center, (4) the production of innovative training aids, and (5) development and application of an information system model to personal decisionmaking by counseling clients.

252. EP010003
$230,650
MICHIGAN INTERDISCIPLINARY RESEARCH TRAINING PROGRAM IN EDUCATION
Investigator—Dixon, W. Robert
Institution—Michigan Univ., Ann Arbor
Bureau Number—BR–6–1951
Responsible Br.—Research Training Branch, DHER
Michigan Congressional District Number 2
Grant—OEG–0–70–3936
FY Funding—FY66—$48,000; FY67—$46,900; FY68—$48,400; FY69—$45,600; FY70—$41,750
Descriptors—Data Analysis, Educational Research, Graduate Study, Instructional Technology, Learning Processes, Linguistic Patterns, Mental Health, Personality Development, Psychology, Research Methodology, Research Skills, Social Sciences, Training
Start date 01 Sep 67 End date 31 Aug 71

A five-year graduate training program will be provided within the social sciences, especially the science of psychology, in an effort to improve the quality of educational research. Four fields of specialization will be offered, each having particular significance in the overall educational scene. Specifically, these areas are—(1) learning and instructional processes, (2) personality development and mental health, (3) language behavior, and (4) research design and data analysis. In addition to basic training, the program will include instruction in statistical procedures, computer applications, and communication skills development. Eight students will be enrolled in the program

each year, permitting two students in each of the four areas.

253. EP010007
$275,550
TRAINING FOR RESEARCH IN SOCIOLOGY OF EDUCATION.
Investigator—Sieber, Sam D.
Institution—Columbia Univ., New York, N.Y.
Bureau Number—BR–6–2120
Responsible Br.—Research Training Branch, DHER
New York Congressional District Number 20
Grant—OEG–0–70–3568
FY66—$54,000; FY67—$63,400; FY68—$57,100; FY69—$50,550; FY70—$50,500
Descriptors—Educational Opportunities, Educational Programs, Educational Research, Research Projects, Research Skills, Sociology, Special Education, Student Projects, Training
Start date 27 May 66 End date 31 Aug 71

The proposed Departmental-Bureau 5-year training program is intended to contribute to the development of (1) research administrators in educational research and (2) sociological researchers on education. Nine students in their first through third year of graduate training are proposed for the first full year, with an additional three students at the fourth-year level in each ensuing year. The program entails—(a) supervision of trainees and coordination of program by a half time training director, (b) a weekly seminar for discussion of trainees, experiences on projects and in the field, trainees, research papers, computer data processing, data bank utilization, and on going projects at the Bureau of Applied Social Research, (c) apprenticeships of second through fourth year students on research projects with requirement of writing a paper based on these projects (for independent research for dissertation students), (d) a technical data specialist to organize research materials and assist students in data retrieval and computer use, (e) one foreign scholar in education per-year teaching in the department, (f) field work in educational settings, (g) partial integration with the National Institute of Mental Health training program in methodology, and (h) a core of curriculum including a new required course in the sociology of education.

254. EP010012
$341,400
GRADUATE TRAINING PROGRAM IN EDUCATIONAL MEASUREMENT, EVALUATION, AND EXPERIMENTAL RESEARCH
Investigator—Davis, Frederick B.
Institution—Pennsylvania Univ., Philadelphia. Graduate School of Education
Bureau Number—BR–6–1842
Responsible Br.—Research Training Branch, DHER
Pennsylvania Congressional District Number 1
Grant—OEG–0–9–061842–4574
FY66—$55,300; FY67—$64,300; FY68—$75,800; FY69—$71,600; FY70—$74,400
Descriptors—Core Curriculum, Doctoral Degrees, Educational Research, Graduate Study, Measurement Techniques, Research Skills, Summer Workshops, Test Construction, Testing, Test Interpretation, Work Study Programs
Start date 01 May 66 End date 31 Aug 71

Educational research workers will be trained at the doctoral level to (1) design, construct, and evaluate measuring instruments, (2) interpret test scores, (3) direct school measurement programs, and (4) design and carry out rigorous research studies in the field of testing. A core curriculum will be provided for this purpose, including academic courses during the regular school year and practical work in summer institutes. These summer sessions will provide activities for internship in schools and in certain facilities of the University of Pennsylvania, including its computer center, test scoring and advisory service center, and test development laboratory. Ten participants per year are expected to enter the program over a 5 year period. Attendance will be 3 years for each trainee.

255. EP010030
$623,800
MULTIDISCIPLINARY GRADUATE PROGRAM FOR PREPARATION OF EDUCATIONAL RESEARCH SPECIALISTS
Investigator—Reid, Jackson B. Institution—Texas Univ., Austin. Coll. of Education
Bureau Number—BR–6–2022
Responsible Br.—Research Training Branch, DHER
Texas Congressional District Number 10.
Grant—OEG–0–70–3925
FY66—$120,000; FY67—$123,400; FY68—$124,800; FY69—$131,600; FY70—$124,000
Descriptors—Computer Programs, Core Curriculum, Doctoral Degrees, Educational Research, Graduate Study, Language Instruction, Mathematics Instruction, Research Methodology, Science Education, Social Psychology, Specialization, Special Services, Teacher Education, Training, Work Study Programs
Start date 27 May 66 End date 31 Aug 71

This graduate training program will be designed to prepare interdisciplinary educational research

specialists. Trainees will pursue doctoral programs cutting across departmental lines and focusing upon one of the following research areas—(1) science and mathematics education, (2) language education, (3) developmental-social psychology in education, and (4) research methodology and computer technology. The program should enhance the quality of elementary and secondary education by increasing the availability and capability of specialists skilled in areas of educational research where the need is great and the shortage of competent researchers is acute. Regardless of area concentration, trainees of the program will be expected to complete academic requisites for their degree in one or more disciplines related to education, advanced training in depth in an area of interdisciplinary educational research specialization, and supervised research experience including internship and dissertation. Each will also be expected to become proficient in research design, statistical methodology, and computer capability relevant to his research concentration. Graduates of the program will be independently capable of performing and instructing others in all aspects of educational research from initial conceptualization and design, through data collection and analysis, to publication and dissemination of results. It is expected that over 40 trainees will complete the program during its 5 year duration.

256. EP010036
$319,700
GRADUATE TRAINING PROGRAM FOR EDUCATIONAL RESEARCHERS WITH COMPUTER COMPETENCE
Investigator—Page, Ellis R.
Institution—Connecticut Univ., Storrs
Bureau Number—BR-6-2036
Responsible Br.—Research Training Branch, DHER
Connecticut Congressional District Number 2
Grant—OEG-0-70-3567
FY66—$60,000; FY67—$55,300; FY68—$70,200; FY69—$67,100; FY70—$67,100
Descriptors—Behavioral Sciences, Educational Psychology, Educational Research, Graduate Study, Research Skills, Special Education, Special Programs, Training
Start date 26 May 66 End date 31 Aug 71

The proposed training program is designed to provide able and well-trained research methodologists, generally prepared to cope with research problems in any usual educational setting, but with particular competence in computer applications and in the important new field of natural-language data analysis. Several features which should make the program effective are—(1) a recruiting program which will seek graduate students of promise from a variety of backgrounds, (2) a sequence of courses designed to emphasize general, behavioral science attitudes, and skills, (3) the application of such attitudes and skills to such educational fields often considered "soft" and inaccessible to scientific techniques as English instruction, and other humanities and arts as well as the humanistic fields within professional education, (4) a sequence of supervised research experiences, covering a spectrum of research strategies, library search and reporting, as well as univariate, bivariate, multivariate quantitative techniques, including both correlational and experimental approaches, (5) a strongly interdisciplinary approach to educational research, capitalizing on the presence of able behavioral scientists in other departments as well as in educational psychology, and (6) highly practical research experiences within the schools themselves, so that abstract skills will be rooted in real educational problems.

257. EP010040
$331,100
AN EDUCATIONAL RESEARCH TRAINING CENTER SPONSORED BY THE SOUTHWESTERN OHIO EDUCATIONAL RESEARCH COUNCIL, INC.
Investigator—Eyman, R. Merle
Institution—Southwestern Ohio Educational Research Council, Inc., Middletown
Bureau Number—BR-6-2393
Responsible Br.—Research Training Branch, DHER
Ohio Congressional District Number 3
Grant—OEG-0-9-452393-4506
FY66—$72,000; FY67—$72,500; FY68—$73,400; FY69—$71,300; FY—$41,900
Descriptors—Educational Research, Graduate Study, Research Skills, Special Education, Special Programs, Training
Start date 01 Jun 66 End date 31 Aug 71

The council, a nonprofit, incorporated organization representing the four Universities of Cincinnati, Dayton, Miami and Xavier, plus 30 subscribing school districts in the 13 southwest counties of Ohio, is requesting funds for two critical reasons—(1) to establish a research training program and (2) to enable students in training to carry out requested research in subscribing school districts. The universities will supply a total of 132 students over a 5-year period, each of whom will take a core curriculum of 18 hours at his own university in areas of research design, theory, problems in education, methodology, statistics, programing, and the use of computers. In addition, 12 to 16 hours of course credit will be offered in the training center

over a year's time. By the end of the year students will understand research designs, be able to implement research projects, and make valid inferences from research data to an appropriate population. The participating universities are major, multidiscipline institutions with enrollments ranging from 6 to 24,000 students. Each offers a master's degree program which can be expanded to include educational research and to offer specialist's degrees. Computers and calculators are available at all universities, and each university has adequate library reference materials, equipment, and resources for a core curriculum and data processing.

258. EP010046
$150,700
GRADUATE RESEARCH TRAINING PROGRAM IN SOCIOLOGY OF EDUCATION
Investigator—Manis, Jerome
Institution—Western Michigan Univ., Kalamazoo Center for Sociological Research
Bureau Number—BR-6-2064
Responsible Br.—Research Training Branch, DHER
Michigan Congressional District Number 3
Grant—OEG-0-70-3540
FY66—$24,000; FY67—$24,100; FY68—$25,400; FY69—$38,600; FY70—$38,600
Descriptors—Doctoral Degrees, Educational Research, Graduate Study, Social Psychology, Sociology
Start date 1 Jun 66 End date 31 Aug 71

This program will produce qualified sociologists who have thorough understanding of research procedures, intensive knowledge of the area of sociology of education, and broad familiarity with educational theory, research methods, and practice. A total of 14 students will be involved in the program over a 5-year period. An individual student's participation will be limited to 3 full years. Applicants must hold the bachelor's degree and meet graduate school and departmental admission requirements. Participants will be chosen on the basis of their desire to study and work in sociology of education, willingness to work full-time in the program and toward the Ph.D. degree, academic record, and references. Participants must meet requirements in and pass examinations on—(1) core areas of theory, research methods, advanced general sociology, and advanced social psychology, (2) one foreign language and statistics of computer programming, (3) the area of sociology of education, a cognate area of education and related fields, and one of the following areas of sociology—social problems, political sociology, or comparative social organization, and (4) a master's thesis and a doctoral dissertation in the area of sociology of education.

259. EP010051
$15,120
IMPROVING RESEARCH SKILLS IN MAJOR SCHOOL SUBJECTS
Investigator—Greene, James F.
Institution—Georgia Univ., Athens. Coll. of Education.
Bureau Number—BR-6-1873
Responsible Br.—Research Training Branch, DHER
Georgia Congressional District Number 3
Grant—OEG-2-6-061873-1531
FY66—$15,120
Descriptors—Educational Research, Instructional Staff, Language Arts, Mathematics, Program Development, Program Planning, Research Projects, Sciences, Social Sciences
Start date 08 Jun 66 End date 30 Jun 67

Expansion of the research training staff in the areas of language arts, mathematics, science, and social studies education is proposed. One professor in each of the four research areas will be responsible for the development of appropriate research competencies among selected graduate trainees. The programs will be designed to result in high-level competencies in the planning, execution, evaluation, and implementation of significant research related to the improvement of learning in the given area of subject matter specialization. Specialized practicum and internship experiences will supplement formal and theoretical instruction in research methodology. Appointed faculty members from the departmental staffs of the college of arts and sciences will cooperate in all research training programs. Faculty and trainees will have access to the staff and facilities of the computer center. Where desirable the proposed program will be correlated with other ongoing related projects.

260. EP010068
$15,000
POSTDOCTORAL RESEARCH TRAINING PROGRAM IN EDUCATIONAL STIMULATION
Investigator—Findley, Warren G.
Georgia Univ., Athens
Bureau Number—BR-6-1881 Proposal date—30 Dec 65
Research Training Branch, DHER
Georgia Congressional District Number 10
Grant—OEG-2-6-061881-1406
FY66—$15,000

Descriptors—Applied Reading, Child Development, Curriculum Development, Early Childhood, Educational Research, Graduate Study, Learning Experience, Learning Motivation, Motivation Techniques, Patterned Responses, Professional Education, Research Skills

Start date 14 Jun 66 End date 31 Aug 67

Postdoctoral trainees will enroll in a program to acquire research competence relevant to projects for the educational stimulation of children, ages 3 through 12. They will first bring themselves up to date by guided reading in early childhood education covering areas of research studies, research design, evaluation technique, computer programing, curriculum innovation, school organization and staffing, learning theory, child development, urban and rural sociology, and compensatory intervention for disadvantaged children. Each trainee will be assigned to a director who will guide his reading and supervise his participation in ongoing research or field testing in the schools of nearby districts. It is expected that each trainee will produce a substantial, publishable monograph or the equivalent in several shorter ones. In exceptional cases, it may be possible to meet the postdoctoral student's needs by scheduling into regular advanced graduate courses for some of his work, but it is expected that guided reading, direct observation, and participation as a staff member in conducting research, developing curriculum materials, field testing innovative procedures and/or materials, or the development of an evaluative technique will add most to predoctoral training.

261. EP010073

$352,200

GRADUATE TRAINING PROGRAM FOR DIRECTORS OF RESEARCH

Investigator—Craig, Robert

Michigan State Univ., East Lansing. Coll. of Education

Bureau Number—BR–6–1965 Proposal date—66

Research Training Branch, DHER

Michigan Congressional District Number 6

Grant—OEG–0–9–321965–4566

FY66—$72,000; FY67—$69,700; FY68—$74,500; FY69—$61,500; FY70—$74,500

Descriptors—Doctoral Degrees, Educational Research, Educational Researchers, Graduate Study, Information Processing, Laboratory Experiments, Operations Research, Research Methodology, Research Skills, Training

Start date 13 Jun 66 End date 31 Aug 71

A graduate training program for research directors will be designed to prepare persons competent to direct the research efforts of individual school districts, intermediate districts, and State Department of Education. It will be conceived in such a manner to provide a graduate student at the doctoral level with the knowledge and experience requisite to a directorship. Experiences will be of several types—(1) course work in the areas of research design, quantitative methods, computer technology, and administration of research programs, (2) field and laboratory research experiences directed through existing and proposed institutes and centers, (3) individual research projects culminating in a dissertation, and (4) cognate work in academic disciplines comprising the behavioral sciences including education. An initial 12 fellowships will be supported by the program during its first year in operation, increasing to almost 40 during the third and succeeding years. It is estimated that a total of 150 researchers will have graduated or be enrolled in the program during the first 5-year period. Such a number will be significant in reducing the need for researchers within the public schools of Michigan.

262. EP010077

$34,520

CONFERENCE AND CURRICULAR AND INSTRUCTIONAL INNOVATIONS IN STATE COLLEGES AND UNIVERSITIES.

Investigator—Hawkins, Earle T.

Towson State Coll., Baltimore, Md.

Bureau Number—BR–6–2502 Proposal date—11 Mar 66

Instructional Materials and Practices Branch, DHER

Maryland Congressional District No. 2

Contract—OEC–2–6–062502–0958

FY66—$34,520

Descriptors—Conferences, Curriculum Enrichment, Curriculum Research, Instructional Improvement, Instructional Innovation

Start date 02 May 66 End date 31 Jan 67

The objectives of the conference on curricular and instructional innovations are—(1) dissemination of recent curricular and instructional improvements, (2) generation of novel solutions to curricular and instructional problems, (3) channeling of these innovations into specific research propositions, and (4) dissemination of fresh approaches. The conference will involve approximately 60 participants from an estimated 50 evolving State colleges and universities for the equivalent of 3 full days.

263. EP010182
$52,088
USE OF A DATA STORAGE AND RETRIEVAL SYSTEM TO TEACH ELEMENTARY SCHOOL CHILDREN CONCEPTS AND MODES OF INQUIRY IN THE SOCIAL SCIENCES
Investigator—Joyce, Bruce R.
Columbia Univ., New York, Teachers College
Bureau Number—BR–6–1369 Proposal date—15 Aug 65
Instructional Materials and Practices Branch, DESR
New York Congressional District No. 20
Contract—OEC–1–6–061369–0684
FY66—$52,088
Descriptors—Concept Formation, Educational Research, Elementary School Students, Primary Grades, Problem Solving, Social Sciences, Teaching Techniques, Purchase, Thought Processes.
Start date 01 Jun 66 End date 30 Jun 68

A prototype of a social science data storage and retrieval system (STAR) will be developed to study social science problem-solving strategies. The system will be suitable for use by primary grade children. Problems to be solved will be derived from subject matter dealing with the Cochiti Indian Pueblo of New Mexico. The major task of the project will be to select visuals supported with written passages, legends and glossaries for use by the children. Procedures will be developed for teaching 20 children to use the star system. Children will be questioned and their responses will be recorded or observed. Observers will be trained to ensure consistent observations. Data collected will be analyzed to compare the effects of age, intelligence, social class, prior social studies instruction, and reading achievement. The data will also be analyzed to determine relationships among problem-solving strategies used and the categories of the system to help children discover social science relationships will proceed after appropriate evaluation.

264. EP010220
$550,447
COMPLETION OF COLLECTING AND PREPARATION FOR EDITING A DICTIONARY OF AMERICAN REGIONAL ENGLISH
Investigator—Cassidy, Frederic
Institution—Wisconsin Univ., Madison
Bureau Number—BR–5–1313
Responsible Br.—Arts and Humanities Program, OAC
Wisconsin Congressional District Number 2
Contract—OEC–6–10–010
FY Funding—FY66—$74,400; FY67—$74,400; FY68—$179,500; FY69—$81,300; FY70—$140,847
Descriptors—Data Processing, Dictionaries, English, Textbook Preparation, Textbook Publications
Start date 1 Jul 65 End date 31 Oct 70

The objective of this project is to complete the collection of language data necessary to the production of a full-scale dictionary of American Regional English and to put the entire body of material into a form which will make for effective and economical editing. Existing conventional files will be converted into a modern data processing form.

265. EP010224
$9,000
DEVELOPMENT OF A MATHEMATICS CURRICULUM FOR UNDERGRADUATE BUSINESS STUDENTS
Investigator—George, Edward Y.
Bentley Coll. of Accounting and Finance, Boston
Bureau Number—BR–5–8455 Proposal date—Apr 65
Instructional Materials and Practices Branch, DHER
Massachusetts Congressional District No. 9
Contract—OEC–1–7–058455–2079
FY67—$3,400; FY68—$5,600
Descriptors—College Students, Computers, Instructional Improvement, Instructional Innovation, Management, Mathematics Curriculum, Boston, Massachusetts, Students
Start date 01 Feb 67 End date 31 Aug 69

A pilot project will be undertaken which will attempt to—(1) develop a modern curriculum in mathematics for undergraduate business students, and (2) explore whether a broader and deeper mathematics curriculum is needed to help business students develop their abilities in coping with management and computer applications. From a group of freshmen business students, three groups will be designated—control group (standard method of math instruction), experimental A (traditional upgraded method), and experimental B (modern upgraded method). Group B will be taught modern mathematics with a special emphasis on the discovery method. All groups will attend three consecutive mathematics courses. The groups will be instructed by different instructors, and given tests at specified periods to measure ability, achievement, and management-and-computer understanding. Data will be analyzed for significant differences in mean scores.

266. EP010275

$4,256

ANALYSIS OF TIME-SERIES QUASI-EXPERIMENTS

Investigator—Glass, Gene V.

Illinois Univ., Urbana

Bureau Number—BR–6–8329 Proposal date—19 Nov 65

Basic Studies Branch, DHER

Illinois Congressional District No. 22

Grant—OEG–3–7–008329–2065

FY67—$4,256

Descriptors—Computer Programs, Mathematical Models, Research Tools, Statistical Analysis, Algorithms, Box and Tiao, Mathematics, Urbana.

Start date 24 Oct 66 End date 31 Dec 67

Broadly conceived, the objective of this project will be an investigation of the adequacy of statistical models developed by Box and Tiao for the analysis of time-series quasi-experiments. This investigation will involve the following—(1) The investigation of the Box-Tiao models as to their adequacy as descriptions of time-series experimental data, (2) Investigation of the possibility of extension of the models of Box and Tiao to the analysis of multiple-group and dependent-group time-series quasi-experiments, (3) The development of computer programs for statistical analysis based on the models, and (4) The application of the models to the analysis of actual time-series quasi-experiments. Upon completion of this project, appropriate procedures for the analysis of time-series quasi-experiments should be available. Drawing upon consultation with statistics and experimental design experts, the principal investigator will modify and adapt the mathematical statistician's models for analysis of the change of level of a time-series to serve the purpose of analysis of time-series quasi-experiments in education. When suitable means of analysis have been found, programs for electronic computers will be written. The final, and most important step, will be the processing of examples of time-series quasi-experiments taken from the literature of experimental education and psychology.

267. EP010286

$9,000

EVALUATION OF AND REVISION OF OPEN LABORATORY PROCEDURES AT THE COLLEGE FRESHMAN LEVEL

Investigator—Downing, William L.

Hamline Univ., St. Paul, Minn.

Bureau Number—BR–6–8534 Proposal date—08 Feb 66

Instructional Materials and Practices Branch, DHER

Minnesota Congressional District Number 4

Contract—OEC–3–7–068534–0067

FY67—$9,000

Descriptors—Audiovisual Aids, Biology, Biology Instruction, Films, Instructional Materials, Laboratory Experiments

Start date 22 Jul 66 End date 31 Oct 67

It is planned to produce a biology course of study (using the open laboratory concept) that will reduce repetition and increase independence of freshman students. Previous research data will be analyzed and correlated by computer. Using this data an open laboratories student manual will be prepared. Teaching methods will be improved. Laboratory procedurals will be modified. Finally, 8 mm. film loops and audio loops will be developed procedures.

268. EP010308

$6,800

COST ANALYSIS OF AUTOMATED SCHEDULING

Investigators—Chaffee, Leonard M., Zeller, Robert W.

State University of New York, Albany, Research Foundation

Bureau Number—BR–6–8380 Proposal date—16 Dec 65

Organization and Administration Studies Branch, DESR

New York Congressional District No. 29

Grant—OEO–1–6–068380–1299

FY66—$6,800

Descriptors—Computer Oriented Programs, Computer Programs, Scheduling, School Administration, School Schedules, Albany, Class Load and Student Scheduling (CLASS), Generalized Academic Simulation Program (GASP), High Schools, Simulation

Start date 01 Jun 66 End date 31 Jul 67

Data will be analyzed which were obtained during the scheduling of two high schools utilizing two computer-based scheduling techniques—the Class Load And Student Scheduling (CLASS) technique and the Generalized Academic Simulation Program (GASP) technique. In addition to detailed cost analysis, comparisons will be made of such items as procedures, type of personnel required, personnel time involved, and relative effectiveness of the master schedules. Analyses of these data will be made by members of the project staff, participating school personnel, and consultants. A summary of these analyses in the form of guidelines and recommendations will be prepared.

269. EP010336

$19,980

DEVELOPMENT OF AN INTERNSHIP AND A COMPUTER-BASED RESEARCH PROGRAM AS AN INTEGRAL PART OF A GRADUATE PROGRAM IN EDUCATIONAL RESEARCH

Investigator—Moore, J. William

Bucknell Univ., Lewisburg, Pa.

Bureau Number—BR–6–1861 Proposal date—17 May 66

Pennsylvania Congressional District No. 17

Grant—OEG–1–6–061861–1088

FY66—$19,980

Descriptors—Computer Oriented Programs, Graduate Study, Individual Instruction, Research Skills, Teacher Interns, Educational Research, Instructional Technology, Learning Processes, Teaching methods

Start date 01 May 66 End date 31 Aug 67

The development of research skills in the teaching-learning process with special emphasis on individualized instruction will be the basic purpose of this graduate training program. Accommodations will be made for the project by expanding the current master's degree program at Bucknell University to include a full semester of internship and by securing the necessary resources to provide training in computer-based technology and to supervise the internship program. During the internship period, a candidate will assume responsibility for directing an approved project in research on the instructional process, either in a public elementary or secondary school or in a college. Program duration will be 4 years.

270. EP010352

$7,586

DEVELOPMENT OF A COMPUTER PROGRAM FOR USE IN THE ANALYSIS OF FUTURE LAND, BUILDING, AND STAFF REQUIREMENTS IN INSTITUTIONS OF HIGHER LEARNING

Investigator—Meier, Robert C.

University of Washington, Seattle

Bureau Number—BR–5–8414 Proposal date—66

Research Branch, DHER

No. 1, Washington

Contract—OEC–4–7–008414–0467

FY67—$7,586

Descriptors—Computer Programs, Computers, Information Processing, Universities, College Buildings, Staff Utilization, Land Use, Colleges, College Planning, Educational Facilities, Classrooms, Educational Equipment

Start date 01 Oct 66 End date 30 Sep 67

A computer program will be developed to provide period-by-period estimates of future university requirements for land, buildings, and staff. The program will take projections of variables external to a university which affect the staff and facilities requirements and, through a set of complex relationships, produce information which can be used to evaluate conditions at various prescribed periods of time. This program will provide the opportunity to observe the effects on a university of different projections of such external variables as the character of the student body, students' objectives, level of research activity and services, and activities provided by the university. It will also provide an opportunity to manipulate endogenous variables in order to see how the manipulations alter requirements. Examples of the latter would include student-faculty ratios and office space standards. After adjustment and review of the program, it is anticipated that it could be used as a useful long-range planning tool.

271. EP010374

$50,247

A DEMONSTRATION CENTER TO IMPLEMENT AND TEST THE SCHOOL PROPERTY ACCOUNTING SYSTEM PRESENTED IN HANDBOOK III, U.S. DEPT. OF HEALTH, EDUCATION, AND WELFARE

Investigator—Burnham, F. R.

Iowa State Dept. of Public Instr., Des Moines

Bureau Number—BR–6–2836 Proposal date—66

Organization and Admin. Studies Branch, DESR

Iowa Congressional District No. 5

Contract—OEC–3–7–062836–1538

FY67—$50,247

Descriptors—Data Processing, Educational Facilities, Educational Finance, Guides, School Districts, Data Analysis, Data Collection, Des Moines, Facilities, Iowa, Program Guides, School Accounting, School District Spending, School Funds

Start date 01 Dec 66 End date 29 Feb 68

An attempt will be made to implement and test the use of the particular system of property accounting described in the U.S. Office of Education Publication (1963), "Guide for Implementing Handbook Three, Property Accounting for Local and State School Systems." Electronic data processing equipment will be used as a basic tool in implementation. The study will result in the establishment of guidelines for (1) collecting data necessary for school property accounting, and (2) revising forms to make them of maximum useful-

ness and efficiency for use with electronic data processing equipment. Special attention will be given to costs of (1) gathering the data, (2) maintaining updating procedures, and (3) using the information to answer questions about school property. Complete records will be made of school property in one district using the accounts presented in "Handbook Three." Emphasis will be upon developing, revising, and perfecting the codes. Attention will also be given to reporting forms, card layouts, and programs whereby property accounting can be implemented and maintained with electronic data processing equipment.

272. EP010378

$9,940

FLOW OF DOCTORATE HOLDERS INTO COLLEGE AND UNIVERSITY STAFFS—A COMPUTERIZED STUDY

Investigator—Reisman, Arnold

Wisconsin Univ., Milwaukee

Bureau Number—BR–6–8133 Proposal date—66

Basic Studies Branch, DHER

Wisconsin Congressional District Number 2

Contract—OEC–3–7–068133–0257

FY67—$9,940

Descriptors—Computer Programs, Degrees (Titles), Digital Computers, Doctoral Degrees, Educational Research, Feedback, Graduate Surveys, Linear Programing, Mathematical Models

Start date 01 Sep 66 End date 01 Sep 68

A conceptual, mathematical model will be refined and programed in mimic source language for solution (on an IBM 7094 Digital Computer) for studying the feedback or flow of persons holding doctoral degrees into the faculty staffs of institutions of higher education. A previously developed model will be used. Specifically, establishing and validating the model's "Lead-Lag Relations" sector will be accomplished. This sector of the model relates the rates of production and/or attrition of various levels of degree holders to the rates of production, in previous years, of lower level degrees. Various postulates will be made and tested against readily available historical data. A computer program capable of processing over 50 nonlinear differential equations will be used to program the model for a solution on the computer. The results of the project will provide a computer simulation of the subject flow process which can be used by decisionmakers to pretest the dynamic, nonlinear, and long-range effects of various programs and/or policies.

273. EP010467

$59,086

APPLICATION OF ELECTRONIC COMPUTER TECHNIQUES TO RACIAL INTEGRATION IN SCHOOL SYSTEMS

Investigator—Barton, Allen H.

Columbia Univ., New York

Bureau Number—BR–6–2771 Proposal date—27 May 66

Organization and Admin. Studies Branch, DESR

New York Congressional District No. 20

Contract—OEC–1–7–062271–0231

FY67—$59,086

Descriptors—Computer Programs, Data Processing, Programing, Racially Balanced Schools, School Integration, Census Figures, Data Collection, Elementary Education, Mathematical Applications, Program Planning

Start date 01 Sep 66 End date 31 Oct 67

A computerized program is planned to assign students to racially imbalanced schools. The logistical input of the "Assignment-Generator" will include (1) data on pupil distribution by race, (2) location and capacity of schools, (3) transportation available, and (4) racial composition desired. These data will be compiled and tested with 1960 statistics from the Bureau of the Census. Operating instructions will be prepared and documented for use by school administrators.

274. EP010478

$7,128

AN INVESTIGATION OF NONINDEPENDENCE OF COMPONENTS OF SCORES ON MULTIPLE CHOICE TESTS

Investigator—Zimmerman, Donald W.

East Carolina Coll., Greenville, N.C.

Bureau Number—BR–6–8209 Proposal date—10 Oct 65

Basic Studies Branch, DHER

North Carolina Congressional District No. 1

Contract—OEC–2–7–068209–0389

FY67—$7,128

Descriptors—Computer Oriented Programs, Computer Programs, Test Results, Test Validity, Testing Programs, Testing Problems, Tests

Start date 30 Sep 66 End date 29 Sep 67

The negative correlation between true scores and error scores in multiple choice tests introduced by chance success due to guessing will be investigated. The study, a continuation of research previously accomplished, which has been reported in journals or is in preparation for publication, is designed to develop equations for the case of nonindependence of the components of test scores and to

check the theoretical results by a computer simulation method. The computer program will begin with prepared distributions of large numbers of assumed true scores, generate error scores which are negatively correlated with the true scores, and add these to the true scores to give observed scores. Product-moment correlations will be obtained between different columns of observed scores as an estimate of test reliability. All theoretical results will be checked by data from the computer program.

275. EP010483

$8,933

EFFECTS OF INAPPLICABILITY OF THE CONTINUITY CONDITION UPON THE PROBABILITY DISTRIBUTION OF SELECTED STATISTICS AND THEIR IMPLICATIONS FOR RESEARCH IN EDUCATION

Investigator—Sparks, Jack N.

Pennsylvania State Univ., University Park

Bureau Number—BR–6–8467 Proposal date—31 Dec 65

Basic Studies Branch, DHER

Pennsylvania Congressional District No. 23

Grant—OEG–1–7–068467–0347

FY67—$8,933

Descriptors—Comparative Statistics, Educational Research, Models, Research Methodology, Statistical Data, Comparative Analysis, Pennsylvania, Research Problems, Statistical Analysis, University Park

Start date 15 Sep 66 End date 14 Sep 67

The concern of this effort will be the extent to which probability distributions of commonly computed statistics vary from established theoretical models as a result of violations (to varying degrees) of the continuity condition. A number of statistical procedures will be compared on their usefulness in educational and psychological research where gross statistical categorizations often occur because of model precision limitations. However, no statistical model is capable of infinite precision or complete continuity when used to categorize nonparametric (distribution-free) statistics. Computer-sampling procedures will be used to draw samples from several hypothetical distributions of population. The student T, Mann-Whitney U, Kolmogorov-Smirnov, and median statistical procedures will then be applied to selected distributions and compared under continuity conditions and several degrees of violation of that condition. The expected results will be useful in choosing comparison procedures and providing leads for useful adaptations and changes in statistical procedures.

276. EP010515

$9,238

SEMINAR IN STATE MUSIC SUPERVISION

Investigator—Phelps, Roger P.

New York Univ., N.Y., Sch. of Education

Bureau Number—BR–7–8124 Proposal date—06 Sep 66

Arts and Humanities Division

New York Congressional District No. 17

Contract—OEC–1–7–078124–2715

FY67—$9,238

Descriptors—Educational Improvement, Music Education, Research Projects, Seminars, Supervisors, Instructional Innovation, Research Opportunities

Start date 24 Jan 67 End date 31 Aug 67

A seminar in state music supervision is planned in which position papers will be presented in the areas of educational administration, sociology, computer research in the humanities, and the arts councils movement. The papers will serve as stimuli for group interaction in an endeavor to explore ways to institute and implement in the various state the concepts and techniques expressed in these reports.

277. EP010530

$25,545

AUTOMATION FOR PREPARATION OF SYLLABI AND BIBLIOGRAPHIES FOR COLLEGE INSTRUCTION

Investigator—Gull, Cloyd D.

Indiana Univ. Foundation, Bloomington

Bureau Number—BR–6–1532 Proposal date—66

Instructional Materials and Practices Branch, DHER

Indiana Congressional District Number 7

Contract—OEC–3–7–001532–0495

FY67—$25,545

Descriptors—Bibliographies, Booklists, Computer Programs, Computers, Course Organization, Curriculum Guides, Indexes (Locaters), Library Instruction, Library Programs, Library Science, Programing, Program Planning

Start date 5 Oct 66 End date 30 Nov 69

An automated system will be devised to include course outlines, corresponding bibliographies, and reading lists for library science instruction. Updating, rearrangement, cross referencing, and printing will be to—(1) establish faculty and student recourse outlines and lists will serve instructors, students, and reserve collection librarians in their work. The steps necessary to accomplish this work will be to—(1) Establish faculty and student re-

quirements for outlines, entries, and format, (2) prepare a flowchart of actions required, (3) write the computer program from the flowchart, (4) prepare rules for keypunching, (5) keypunch and verify the outlines and entries, (6) print sets of outlines and entries, (7) assess their usefulness to faculty, students, and reserve librarians, and (8) devise new uses for course outlines and bibliographies.

278. EP010560
$7,747
A NATIONAL SURVEY OF STUDENT TEACHING PROGRAMS
Investigator—Johnson, James A.
Northern Illinois Univ., De Kalb
Bureau Number—BR-6-8182 Proposal date—24 Sep 65
Instructional Materials and Practices Branch, DESR
Illinois Congressional District No. 15
Grant—OEG-3-7-068182-2635
FY67—$7,747
Descriptors—Data Analysis, National Surveys, Program Evaluation, Questionnaires, Student Teaching, Computer Programs, Data Collection, De Kalb, Illinois, Measurement Instruments, Teacher Education
Start date 09 Jan 67 End date 08 Jul 68

The current practices of all student teaching programs in the United States will be surveyed. The tasks of the project will be to (1) develop and pretest a survey instrument with the help of a panel of consultants, (2) mail the instrument and maintain a second contact with nonrespondents, (3) followup the nonrespondents, (4) transfer data collected to IBM cards for computer analysis of data and the writing of programs, and (5) write the final report and disseminate information obtained through the study to interested parties.

279. EP010565
$57,989
EDUCATION IN THE SEVENTIES—A STUDY AND DESCRIPTION OF MODEL SCHOOL SYSTEMS OF THE NEXT DECADE, UTILIZING COMPUTER-ASSISTED INSTRUCTION
Investigator—Margolin, Joseph B.
George Washington Univ., Washington, D.C.
Bureau Number—BR-7-0400 Proposal date—24 Jan 67
Organization and Admin. Studies Branch, DESR
District of Columbia
Contract—OEC-2-7-07400-2833
FY67—$57,989
Descriptors—Automation, Computer-Assisted Instruction, Educational Change, Methods Research, Seminars, District of Columbia, Educational Research, Instructional Technology, Models, School Planning, Teaching Methods
Start date 01 Feb 67 End date 01 Sep 67

A traveling seminar of 16 to 20 educators and scientists will be conducted to review recent developments in computer-assisted instruction (CAI) and to formulate long-range, educational research plans relevant to CAI. After a site visitation program, during which at least five demonstrations of CAI research and practice will be observed, the seminar participants will develop models of educational systems incorporating CAI and related educational technology.

280. EP010566
$9,867
COUNSELOR TRAINING IN STATISTICAL ANALYSIS VIA ELECTRONIC PROCESSING FOR RESEARCH ON LOCAL AND REGIONAL STUDENT DATA
Investigator—Long, Thomas
Altonna Area School District, Pa.
Bureau Number—BR-7-8239 Proposal date—66
Research Training Branch, DHER
Pennsylvania Congressional District No. 12
Grant—OEG-1-7-078239-2919
FY67—$9,867
Descriptors—Computers, Counselors, Institute Type Courses, Programing, Statistical Analysis, Altoona, Pennsylvania, Research Methodology, Statistical Data
Start date 14 May 67 End date 25 Sep 67

A research institute designed to train school counselors in programing, data processing, and computer-use skills for statistical analysis of local and regional student data is planned. In the 2-week period, 25 participants will be trained in (1) data processing IBM card characteristics, (2) the use of the key punch, sorter, collator, alphabetic interpreter, and card reproducer, (3) fortran programing techniques for writing statistical formulary programs, (4) statistical concepts of central tendency correlation, standard deviation, chi-square, and test-of-significance and relate these procedures to electronic analysis of available student data, and (5) the operation of teletype remote stations. This institute should help school counselors to better collect, analyze, and disseminate school and student-related data, and enable them to engage in cooperative analysis procedures with other schools in their area.

281. EP010586
$9,000
A STUDY OF THE EFFECTS OF COMPUTERS ON THE OCCUPATIONAL ADJUSTMENT OF A PROFESSIONAL GROUP
Investigator—Daniels, Morris J.
San Diego State Coll., Calif.
Bureau Number—BR–6–8758 Proposal date—15 Apr 66
Basic Studies Branch, DCVR
California Congressional District Number 36
Grant OEG–4–7–068758–2978
FY67—$9,000
Descriptors—Behavior, Computers, Conflict, Consultants, Habit Formation, Job Analysis, Mobility, Opinions, Resentment, Transfer of Training, Work Attitudes
Start date 01 Jun 67 End date 01 Jun 70

Problems resulting from the computer-created changing role of the accountant will be studied. The need for accountants to know something about computers and the professional pressures on the accountant to provide management services as a counselor and advisor to business raise three questions to be studied—(1) What are the sources of resistance to the role change?, (2) What nontechnical effects result from the technical change (such as effects on the profession's ethical code)?, and (3) What education programs have been developed to meet this transition? Comparisons will be made among CPA firms in Los Angeles and San Francisco at three levels of transition, ranging from a complete lack of preparation for the changing role to a fairly complete assimilation of it. Education programs in progress will also be observed. Results of these investigations will be studied, on a theoretical level, to learn how individuals adjust to critical turning points as a particular form of adult socialization.

282. EP010612
$6,055
AN ANALYSIS AND INTERPRETATION OF DATA ON THE SOCIAL CHARACTERISTICS OF RESIDENTS OF "VINE CITY," AN URBAN NEGRO SLUM
Investigator—Halvorsen, Marcia
Spelman Coll., Atlanta, Ga.
Bureau Number—BR–6–8162 Proposal date—27 Aug 65
Human Resources Development Branch, DAVR
Georgia Congressional District No. 5
Contract—OEC–2–6–068162–0523
FY 66—$5,995; FY 67—$60
Descriptors—Social Characteristics, Negroes, Slum Environment, Data Collection, Statistical Data, Southern Community, Interviews, Economically Disadvantaged, Atlanta
Start date 01 Feb 66 End date 01 Jun 67

The social patterns of Negro residents of an urban slum and the relationship of these patterns to "the poor" in general will be studied. Data previously collected by interviews with Negroes in "Vine City," an urban Negro slum in Atlanta, Georgia, will be analyzed. The data will concern the following areas of inquiry—(1) family structure and marriage, (2) housing, education, health, family budgeting and spending, (3) income and employment, (4) political behavior and attitudes toward authority, (5) leisure activities, (6) deviant behavior and attitudes, and (7) class identification and awareness. The data analysis will consist of tabulations through a series of computer programs. Distinguishing features of urban Negro poverty, identified during the analysis should be useful in developing policies for poverty programs.

283. EP010641
$9,864
DEVELOPMENT AND TESTING OF A SYSTEMS MODEL OF THE CLASSROOM RELEVANT TO CLASSROOM TEACHING AND COMPUTER-ASSISTED INSTRUCTION
Investigator—Hough, Robbin R.
Michigan State Univ., Rochester. Oakland Univ.
Bureau Number—BR–7–063 Proposal date—05 Dec 66
Regional Research Program, OAC
Michigan Congressional District Number 18
Grant—OEG–3–7–070063–3138
FY67—$9,864
Descriptors—Classroom Techniques, Computer-Assisted Instruction, Educational Research, Information Retrieval, Instructional Aids, Learning Processes, Models, Systems Development, Teaching Techniques
Start date 01 May 67 End date 31 Dec 67

The focus of this project will be on elaboration of a general instructional model of the classroom learning process. The model's purpose will be to provide a useful framework for both applied and theoretical research on the subject of classroom or computer-assisted instruction. The instructional nature of the model will emphasize a tutorial approach, rather than programed learning or drill-exercise. During the project period, plans are to complete the development of the experimental model and to begin the design of preliminary methods for evaluating the experiences of individuals who might use it.

284. EP010663

$3,700

INVENTORY SYSTEMS LABORATORY

Investigator—Naddor, Eliezer

Johns Hopkins Univ., Baltimore, Md.

Bureau Number—BR-7-C-015 Proposal date—09 Aug 66

Regional Research, Office Associate Commissioner

Maryland Congressional District No. 4

Contract—OEC-2-7-070015-3111

FY67—$3,700

Descriptors—Computer-Based Laboratories, Computer Oriented Programs, Computer-Assisted Instruction, Business Education, Autoinstructional Aids, Systems Approach, Experimental Teaching, Simulation, Program Evaluation, Program Costs, Models, Operations Research, Baltimore, Maryland

Start date 06 Mar 67 End date 05 Dec 67

A shared computer laboratory will be set up for the study of business inventory systems based on the existing college business curriculum. The laboratory will be used and evaluated as a teaching device in such courses as inventory systems, operations research, statistical methods, computer art and science, and measurement and experimentation. The shared computer will be used to simulate real situations, evaluate the effect of decisions, and computer costs. Manuals will be prepared for the use of students and instructors. It is hoped that the laboratory will become a permanent teaching aid and that the method developed will be readily extendible for use in other courses.

285. EP010665

$129,050

A FEASIBILITY STUDY OF A CENTRAL COMPUTER FACILITY FOR AN EDUCATIONAL SYSTEM

Investigator—Lewis, D. G.

General Learning Corp., Washington, D.C.

Bureau Number—BR-7-9000 Proposal date—20 Feb 67

Instructional Materials and Practices Branch, DCVR

District of Columbia

Contract—OEC-1-7-079000-3525

FY67—$129,050

Descriptors—Computer Oriented Programs, Design, Educational Facilities, Educational Research, Evaluation Techniques, Feasibility Studies, Operations Research, Program Costs, Program Evaluation, Systems Analysis, Systems Approach, Task Performance

Start date 20 Apr 67 End date 07 Sep 67

Three major tasks will be performed in this feasibility study of a central computer facility for a hypothetical educational community of 50 schools housing 100,000 students. The first task will be a functional analysis, the end product of which will be a specification of the performance requirements of the system. The second task will be a design synthesis task wherein alternative designs will be generated and continually refined on the basis of the evaluation of the performance and cost of each. The third task, in support of the second, will be that of developing and applying methods for evaluating the performance of alternative designs and for selecting recommended systems on the basis of cost and performance. Upon completion of these tasks, preliminary design specifications for simulation models will be developed for a time-share system and a multiprogramed system. These models should serve as tools for the design and evaluation of systems which are similar in functional performance but different in the number of students and schools served.

286. EP010693

$3,537

AN EVALUATIVE STUDY OF TEACHER CONSTRUCTED TEST ITEMS FOR B.S.C.S. BIOLOGY

Investigator—Turner, G. C.

California State Coll., Fullerton

Bureau Number—BR-6-8919 Proposal date—67

Instructional Materials and Practices Branch, DCVR

California Congressional District No. 35

Contract—OEC-4-7-068919-3041

FY67—$3,537

Descriptors—Biology Instruction, Curriculum Research, Learning Difficulties, Test Validity, Testing Programs, Biological Sciences Curriculum Study (BSCS), California, Data Processing, Differential Aptitude Test (DAT), Measurement, Secondary Education, Student Testing

Start date 01 Mar 67 End date 31 Dec 67

A 420-page portfolio of biology test questions will be validated, using data processing techniques, to obtain a concise and diagnostic evaluation of each question. The questions were developed during a 4-year program of biological sciences curriculum study (BSCS) inservice institutes. They were designed for use with the BSCS "Yellow Version" biology text. The questions will be administered to 270 senior high school biology students who will respond by marking special cards, prepunched for the individual student. The marked cards will be processed by computer. The

validity of each question will be computed by both an internal and external criterion. The internal criterion will consist of the comparative score on individual test questions in relation to the total test score. The external criterion will consist of the student's score on the verbal reasoning section of the Differential Aptitude Test (DAT). These procedures will provide, for each question, the level of difficulty and the level of discrimination by internal and external criterion.

287. EP010735
$14,839
A COORDINATED NETWORK OF INSTITUTIONAL RESEARCH WORKSHOPS
Investigator—Stecklein, John E.
Minnesota Univ., Minneapolis
Bureau Number—BR-7-0286 Proposal date—67
Research Training Branch, DHER
Minnesota Congressional District Number 5
Grant OEG-1-7-070286-3805
FY67—$14,839
Descriptors—Computer Oriented Programs, Data Analysis, Data Collection, Educational Research, Higher Education, Institutional Administration, Management, Research Methodology, Research Skills, Workshops
Start date 01 Jun 67 End date 01 Nov 68

Two coordinated regional workshops will be conducted on institutional research, which is defined as "continuous self-study by an institution." Each Workshop will run 11 days, and will be limited to 30 participants who have been assigned, or will assume responsibility for institutional research. Case studies, simulated studies, raw data, or other materials will be presented to the participants who will be assigned certain tasks to accomplish using these materials. Staff members will assist the participants in learning to develop institutional research reports that can provide the internal management of colleges and universities a basis for decisionmaking and future planning for effective operation.

288. EP010754
$10,000
DEVELOPMENT OF COMPUTERIZED TECHNIQUES IN MUSIC RESEARCH WITH EMPHASIS ON THE THEMATIC INDEX
Investigator—Lincoln, Harry B.
State Univ. of New York, Albany
Bureau Number—BR-7-8276 Proposal date—67
Arts and Humanities Program, OAC
New York Congressional District Number 29
Grant OEG-1-7-078276-3898
FY67—$10,000
Descriptors—Computer Oriented Programs, Conferences, Indexes (Locaters), Music Education, Music Theory, Research Projects, Research Tools
Start date 01 May 67 End date 30 Jun 68

A conference for specialists will be held as an initial stage of a larger project to develop computerized techniques in music research with emphasis placed on the indexing of musical themes. Broad criteria and procedures in research will be discussed and established, and work on a more extensive proposal for future support will be prepared.

289. EP010788
$23,571
POSTDOCTORAL FELLOWSHIP PROGRAM IN EDUCATIONAL RESEARCH
Investigator—Page, Ellis
Connecticut Univ., Storrs
Bureau Number—BR-7-1289 Proposal Date—29 May 67
Research Training Branch, DHER
Connecticut Congressional District Number 2
Grant OEG-1-7-071289-5028
FY67—$23,571
Descriptors—Educational Improvement, Educational Research, Educational Researchers, Fellowships, Post Doctoral Education, Research Methodology, Research Opportunities, Research Skills
Start date 01 Sep 67 End date 31 Aug 68

A postdoctoral fellowship program in educational research will be instituted to allow the selected partcipant to engage in an intensive year of educational research training. The participant's training will be augmented by study in statistics, experimental design, multivariate analysis, data processing, and computer programing. As a result, the participant will be better able to design, undertake, and evaluate research problems in education and make greater contributions to educational research, especially in experimental design, natural language analysis, and computer applications in English education.

290. EP010816
$54,982
ADVANCED EDUCATIONAL RESEARCH INSTITUTE FOR SMALL COLLEGE AND UNIVERSITY PERSONNEL
Investigator—Hill, Robert E.
Ball State Univ., Muncie, Ind.
Bureau Number—BR-6-1890 Proposal date—66

Research Training Branch, DHER
Indiana Congressional District Number 10
Grant—OEG–3–6–061890–0780
FY66—$54,982
Descriptors—College Faculty, Computers, Educational Research, Institutes (Training Programs), Programing, Regional Laboratories, Researchers, Small Schools, Summer Programs
Start date 18 Apr 66 End date 31 Oct 66

A summer institute is planned to develop research competencies of faculty members from small colleges and universities who could become leaders in educational research. The objectives are to (1) create an awareness of the importance of educational research for optimum educational success, (2) aid in the development of research competencies, and (3) acquaint the participants with research opportunities, proposed functions and structures of regional education research laboratories, and the place of computers and other technological instruments in educational research. The research institute will be open to 30 faculty members from small colleges and universities with teacher training programs.

291. EP010834
$55,890
A SURVEY AND ANALYSIS OF EDUCATIONAL INFORMATION
Investigator—Katzenmeyer, William
Institution Association for Educational Data Systems, Washington, D.C.
Bureau Number—BR–7–0992 Proposal date—67
Responsible Br.—Office of Association Commissioner, B.R. Program Planning and Evaluation, OAC
District of Columbia
Contract—OEC–1–7–070992–5022
FY67—$55,890
Descriptors—Data Analysis, Data Collection, Data Processing, Educational Resources, Information Processing, National Surveys
Start date 30 June 67 End date 31 Mar 70

The Association for Educational Data Systems, through its National Center for Educational Data Processing, will conduct a survey to identify available educational information across the United States. The project staff will gather information about all phases of the Educational Program (Preschool to adult, including higher education) from all State agencies, large school systems (100,000 or more enrollment), and other identified major resource centers. This information will be converted to machine-usable form and subjected to predetermined computer analysis. The information will then form the basic foundation for detailed examination by the project staff in determining the compatibility of the information between agencies involved in the survey. This will then form the content for a final report which will indicate what was collected and its interrelationship. Five two-man survey teams will survey resource centers within a predetermined geographic region. The project director will use a regional coordinator to assist surveying in high-density regions. A team of experienced educational survey consultants will assist the project staff in identifying the items of information to be collected, the design of the survey forms, and the final survey activities. Data from each of the following areas of educational information will be gathered in the survey—staff personnel, pupil personnel, instructional programs, property, and educational finance.

292. EP010872
$92,500
TEN MID-WEST INSTITUTIONS GROUPED COOPERATIVELY TO DEVELOP A RESEARCH CAPABILITY
Investigator—Armstrong, Charles J.
Dayton Univ., Ohio
Bureau Number—BR–7–E–176 Proposal date—31 Mar 67
Cord Program, OAC
Ohio Congressional District Number 3
Grant—OEG–1–7–070176–4298
FY67—$50,000
FY68—$42,500
Descriptors—Centralization, College Cooperation, Cooperative Programs, Curriculum Development, Curriculum Research, Development, Educational Research, Higher Education, Instructional Improvement, Interschool Communication, Program Coordination
Start date 15 Jun 67 End date 28 Feb 70

Members of a newly formed consortium among 10 institutions of higher education in Ohio will establish an interinstitutional, cooperative research and development program. Through this program, the institutions will seek, on a joint basis, to improve their curriculums, to develop new courses and educational programs, to minimize the cost of education to the institution and to the student, to develop new or better educational methods and materials, and to centralize selected educational functions using modern educational technolology, computers, and communication media. Both interinstitutional and intrainstitutional research and development will be planned, facilitated, and coordinated, including, but not limited to, (1) seminars on the role of the computer in improving ed-

ucational effectiveness, (2) inventories of faculty resources for consortium cooperative efforts, (3) comparisons of student charactetristics versus educational performance to assist the disadvantaged student, and (4) maintenance of modern libraries by maximizing information retrieval, new communication media, and interinstitutional cooperation.

293. EP010907
$9,046

THE EFFECTS OF COURSES EMPLOYING SCHOOL MATHEMATICS STUDY GROUP TEXTS ON STUDENTS' FIRST SEMESTER GRADES

Investigator—Flanagan, S. Stuart
Virginia Univ., Charlottesville
Bureau Number—BR-7-C-051 Proposal date—28 Jun 68
Regional Research Program, OAC
Virginia Congressional District Number 7
Grant—OEG-0-8-000051-0215-010
FY68—$9,046
Descriptors—Academic Achievement, Achievement Rating, Calculus, College Students, Comparative Analysis, Course Objectives, Freshmen, Mathematics Curriculum, Mathematics Materials, Predictive Ability (Testing)
Start date 01 Jul 67 End date 01 Sep 68

The effects of high school courses employing School Mathematics Study Group (SMSG) texts on college students' first semester grades in mathematics (Calculus) will be assessed. In addition, an attempt will be made to develop a suitable predictor of success in college mathematics. Students in a 1966–67 freshman class who have had SMSG courses in high school have been identified. Data have been analyzed from a 90-percent return of a questionnaire sent to this class of 930 students, and the results have indicated that about 200 have had at least one course in SMSG mathematics. All other pertinent data acquired by questionnaire will be included with information derived from these students' records and then compared with similar data for students who have not taken SMSG courses but have taken the first semester college course in mathematics. A computer program using multiple-linear regression will then be employed to compare the achievement in college mathematics of the two student groups. With the same program, a regression equation to predict success in college mathematics will be derived. The four or five factors which allow the best prediction of college calculus grades will be reported so advisors may better counsel incoming freshmen.

294. EP010953
$10,000

AN EMPIRICAL STUDY OF THE DOMINATING PREDICTIVE FEATURES OF SPOKEN LANGUAGE IN A REPRESENTATIVE SAMPLE OF SCHOOL PUPILS

Investigator—Loban, Walter; Marascuilo, Leonard A.
California Univ., Berkeley
Bureau Number—BR-7-1-106 Proposal date—25 May 67
Regional Research Program, OAC
California Congressional District Number 7
Grant—OEG-9-8-070106-0031-010
FY68—$10,000
Descriptors—Communication (Thought Transfer), Logitudinal Studies, Predictive Measurement, Socioeconomic Influences, Speech Habits, Speech Improvement, Speech Skills
Start date 01 Oct 67 End date 30 Jun 69

A longitudinal study of school pupils' oral language patterns will be made by computer analysis of existing data. The language patterns gathered for one set of students will be analyzed to compare the language features of the students during grades 1, 2, and 3 with their language during grades 10, 11, and 12. The language samples were gathered from 207 students who were selected to represent a complete range of the socioeconomic, intellectual, ethnic, and sex distribution of pupils in Oakland, California. Interviews that were individually conducted with each pupil were recorded each spring. These structured interviews, that included conversation in response to questions and interpretations of a set of six pictures, were transcribed in conformance with a special set of rules. Each subject's language will be analyzed in terms of 13 factors. The principal component score for grades 1–3 will be used to determine the subjects' language proficiency at the beginning of their school training, and a study will be made to determine how well these scores predict the student's proficiency in grades 10–12. A secondary objective is to relate the principal component scores to the variables of sex, ethnic background, socioeconomic status, IQ, and teacher rating on spoken language. All data has been scored and placed on IBM cards. Statistical analysis will be performed by computer using some existing programs and some yet to be written.

295. EP010954

$7,878

THE RELATIVE IMPORTANCE OF FAMILY, PEERS AND SCHOOL TO THE PRE-ADOLESCENT AND ADOLESCENT

Investigator—Larson, Lyle E.

Oregon Univ., Eugene

Bureau Number—BR-7-I-105 Proposal Date—67

Regional Research Program, OAC

Oregon Congressional District Number 4

Grant—OEG-9-8-070105-0035-010

FY67—$7,878

Descriptors—Adolescents, Data Processing, Parent Child Relationship, Parent Influence, Peer Relationship, Questionnaires, Role Theory, Social Adjustment, Social Development, Social Influences, Socialization, Sociocultural Patterns, Student School Relationship

Start date 1 Oct 67 End date 31 Mar 69

The influence of the family, peers, and the school, in the process of socialization of preadolescents, and adolescents will be explored to determine the relative importance of the effects of each of these primary units. The study will attempt to answer these questions—(1) Is the parent, peer group, or the school most important to the preadolescent?, (2) which of these units is most important to the adolescent?, (3) Does the importance of each social unit increase, remain stable, or decrease over time?, (4) What are the perceptions of preadolescents and adolescents concerning the role expectations of their parents, their best friends, and their teachers for both current and future roles?, and (5) What is the effect of each social unit on behavior? A pretested and precoded questionnaire will be administered to all students in the sixth, ninth, and 12th grades in one community in Southern Oregon. These grades were selected because they were seen as important crisis points for the child in terms of both current and anticipatory role identity. A questionnaire will also be filled out by the parents and the teacher of each child. Number coding will permit identification of the family unit and complete anonymity will be assured. Statistical analysis will be performed by computer. Results of the study are expected to assist in relating existing theory and research to provide a more systematic explanation of the influence of sociocultural factors on attitudes and behaviors.

296. EP011002

$9,998

REDUCTION OF ERRORS DUE TO THE POSITION OF ITEMS IN THE ADMINISTRATION OF THE SEMANTIC DIFFERENTIAL QUESTIONNAIRE

Investigator—Kane, Robert B.

Purdue Research Foundation, Lafayette, Ind.

Bureau Number—BR-7-E-189 Proposal date—16 May 67

Regional Research Program, OAC

Indiana Congressional District Number 2

Contract—OEC-0-8-070189-2508

FY68—$9,998

Descriptors—Computer Programs, Evaluation, Semantics, Test Construction, Test Reliability, Tests

Start date 01 Feb 68 End date 31 Aug 68

Approximately 250 undergraduate students at Purdue University will be randomly assigned to three experimental testing groups to (1) determine the results of controlling three sources of order effects in semantic differential (SD) administrations and (2) Aid in developing a practical method of producing a set of SD questionnaires in which item-order effects are minimized by using an electronic computer to generate the questionnaires. Concept order, scale order, and scale polarity are the three order effects which are sources of proximity error in semantic differential administrations. The creation of the computer program will make it possible to determine the results of controlling the sources of order effects in the tests. Comparisons will be made between responses to SD questionnaires produced in the conventional way and computer-generated SD questionnaires in which item orders are varied to control proximity error. Differences in factor structure, factor scores, and response consistencies will be analyzed. In the event that this research indicates that proximity error reduction yields significant differences in the results from SD administration, other experimenters may use the computer program created for this research since it will be written in Fortran, a language that is acceptable to almost all computing systems available to educational researchers.

297. EP011033

$9,946

FRAME SIZE, FRAME CONTENT, AND CRITERION MEASURES IN AUTO-INSTRUCTION AND THE PREDICTION OF LEARNER SUCCESS

Investigator—Flynn, John M.

Nova Univ. of Advanced Technology, Fort Lauderdale, Fla.

Bureau Number—BR–7–D–072 Proposal date—16 May 67
Regional Research Program, OAC
Florida Congressional District Number 10
Grant—OEG–4–8–070072–0016
FY68—$9,946
Descriptors—Autoinstructional Aids, Autoinstructional methods, Autoinstructional Programs, Grade 9, Individual Differences, Instructional Materials, Programed Materials, Statistical Analysis
Start date 01 May 68 End date 30 Apr 69

The relative effectiveness of four different frame sizes (amount of material between elicitations of responses) in autoinstructional materials will be tested, using four different contents—numeric (statistics), verbal-factual (astronomy), verbal-conceptual (psychology), and verbal-numeric (computer programing). Additionally, the learner-centered variables of sex, age, reading comprehension, vocabulary level, intelligence, open-mindedness, school motivation, interest in subject, cognitive style, and prior knowledge of the subject will be studied. Eighty ninth-grade students selected randomly from Nova High School in Ft. Lauderdale, Florida, will be given four versions of four different autoinstructional programs as described. A Greco-Latin square design with repeated measures will be employed. Criterion measures of completion time, achievement, retention, error rate, and attitudes will be taken and an analysis of variance will be run for each. In addition, the learner-centered variables will be used in discriminate function analyses, multiple regression analyses (linear and net), and profile analyses with each of the criterion measures used as independent variables. The complete study will be cross-validated with a second sample of 80 students from the ninth grade at Nova High School. The results of this study should be a step in yielding information on the efficiency of autoinstruction with different individuals, with different frame sizes, and with different contents.

298. EP011035
$7,780
A METHOD FOR EVALUATING STUDENT PROGRESS IN UNDERGRADUATE COMPUTER SCIENCE BY USE OF AUTOMATED PROBLEM SETS
Investigator—Woodbridge, David D.
Florida Inst. of Tech., Melbourne
Bureau Number—BR–7–D–080 Proposal date—67
Regional Research Program, OAC
Florida Congressional District Number 5
Grant—OEG–4–8–070080–0015
FY68—$7,780
Descriptors—Autoinstructional Programs, College Curriculum, College Programs, Computer Oriented Programs, Computer Programs, Computers, Data Processing, Evaluation, Evaluation Techniques, High School Curriculum, Instructional Aids, Instructional Technology, Problem Sets, Programing Problems, Student Evaluation, Teaching Techniques
Start date 01 Mar 68 End date 30 Apr 69

High school or college courses in computer science (data processing) require the evaluation of each student's efforts for partial credit, method of approach, and uniqueness of solution. Presently this is done by the instructor. It is the objective of this study to develop a technique to aid the instructor in this evaluation task by using the computer for the evaluation and grading of students' efforts by expanding on the concept of the "automated computer programing problem sets." Efficiency of the computer in evaluating student results will be a prime goal. The first task will be to develop two automated problem sets on hexadecimal and symbolic programing for the student. This will be used to test evaluation techniques, and give both teacher and student practice with basic machine language, computer commands, and fundamental programing techniques. Programs will be developed for the effective execution of problems, using the automated sets, and for instructor evaluation of the results. The last part of the study will be an evaluation of teaching techniques by automatic data processing methods. The computer will be used to reduce data and run analysis of variance programs on these data. A student body of over 400 students enrolled in computer science courses at the Florida Institute of Technology will be the sample population used to evaluate the automated problem sets.

299. EP011047
$10,000
A STUDY OF READING MISCUES THAT RESULT IN GRAMMATICAL CHANGES IN SENTENCE STRUCTURE BY CHILDREN
Investigator—Goodman, Kenneth S.
Wayne State Univ., Detroit, Mich.
Bureau Number—BR–7–E–219 Proposal date—67
Regional Research Program, OAC
Michigan Congressional District Number 13
Grant—OEG–0–8–070219–2806
FY68—$10,000
Descriptors—Deep Structure, Language Research, Oral Reading, Reading Processes, Response Mode, Transformation Theory (Language)
Start date 05 Feb 68 End date 04 Feb 69

Aspects of oral reading behavior as they apply to recording grammatical re-transformation of responses to the graphic stimuli will be studied. The grammatical structures of the graphic stimuli and the transformed responses will be studied in depth and categorized in fine detail. Data will be collected from an existing pool from prior studies and continuing studies of children's behavior while reading orally. In these studies, children read orally material which was unfamiliar, but somewhat difficult. Miscues that involve transformations will be sorted out by a computer program and will be subjected to analysis, classified into a detailed taxonomy of transformations and coded for analysis. This study should provide insight into the function of grammatical information in the reading process, the psychological reality of grammatical transformations, and language comprehension in general. It is also expected that this study will shed light on the growth of grammatical complexity in children's language competence and indicate some principles for controlling grammatical complexity in reading materials.

300. EP011098

$10,000

SAME CLASS ORGANIZATION FOR MALE AND FEMALE JUNIOR HIGH SCHOOL STUDENTS—EFFECTS ON ACHIEVEMENT, SELF-DISCIPLINE, CONCEPT OF SELF, IDENTIFICATION ROLE, AND ATTITUDE TOWARD SCHOOL

Investigator—Ellis, Joseph R.

Northern Illinois Univ., De Kalb

Bureau Number—BR-7-E-115 Proposal date—06 Mar 67

Regional Research Program, OAC

Illinois Congressional District Number 15

Grant—OEG-0-8-000115-0218

FY68—$10,000

Descriptors—Academic Achievement, Educational Attitudes, Grade 7, Grade 8, Individual Development, Junior High School Students, Maturation, Role Perception, School Attitudes, Self Concept, Self Control, Sex (Characteristics), Sex Differences

Start date 01 Jul 67 End date 31 Aug 68

Relationships between sex class organization for seventh- and eigth-grade students and academic achievement, self-discipline, self-concept, sex role identification, and attitudes toward school will be determined. The five dependent variables will be measured by pretests and by two posttests to be administered at intervals of 4 and 9 months to students enrolled in all male, all female, and mixed classes. Additionally, structured interviews will be developed to obtain student responses for all dependent variables and as a validation procedure. The population studied will include all seventh- and eighth-grade students in the northern Illinois University Junior High School. Data sources will include student records, responsible teachers, and counselors. The data collected are to be computer analyzed to compare mean differences of experimental and control groups by analysis of covariance. Additionally, the biserial correlation technique will be employed to determine relationships between differences noted and selected personal attributes of the population studied.

301. EP011099

$7,380

THE MEASUREMENT OF PHYSIOLOGICAL AROUSAL ASSOCIATED WITH READING, WRITING, SPEAKING, LISTENING AND THE EVALUATION OF RESPONSES TO PLEASANT, ADVERSIVE, AND PERSONAL WORDS

Investigator—Crane, Loren D.; and others

Western Michigan Univ., Kalamazoo

Bureau Number—BR-7-E-199 Proposal date—20 Apr 67

Regional Research Program, OAC

Michigan Congressional District Number 3

Grant—OEG-0-8-070199-3335

FY68—$7,380

Descriptors—Arousal, Patterns, College Students, Communication (Thought Transfer), Females, Listening, Males, Physiology, Reading, Speaking, Writing

Start date 1 Mar 68 End date 31 Jan 69

The role of physiological arousal will be determined as measured by Galvanic skin response (GSR) and heartbeat rate to a variety of messages in a variety of media. An equal number of male and female college students will be assigned to treatment groups on a random basis. The three conditions of pleasant, adversive, and personal words will be rotated with the five response modes of reading, writing, listening, speaking, and evaluating so that all combinations of stimulus and response will be paired. Galvanic skin response and heartbeat rate recordings will be taken for each response. Output will be cards punched for computer analysis of variance. Serial ordering and fatigue will be controlled. Subjects selected for the study will be at or above the threshold of a reliably measurable GSR.

302. EP011102

$9,998

COLLEGE EFFECTS ON OCCUPATIONAL CHOICE—A PILOT STUDY

Investigator—Meyer, John W.

Stanford Univ., Calif.

Bureau Number—BR–7–1–070 Proposal date—19 Apr 67

Office of Associate Commissioner, B.R. Regional Research Program, OAC

California Congressional District Number 10

Grant—OEG–9–8–071070–0060

FY68—$9,998

Descriptors—Career Choice, College Environment, College Role, College Students, Goals Orientation, Occupational Choice, Role Perception, Role Theory, Social Influences, Social Status, Social Structure, Student School Relationship

Start date 01 Jun 68 End date 31 Jul 69

Effects of social structure on college students' occupational choices will be studied. The analysis will be performed with information on 1,000 students in 99 colleges. The data will be analyzed in context with "a model of the theory of occupational role-development in college." Essential elements of the model are college size and complexity, school quality, density of student social and organizational roles, value and meaningfulness of college membership, sense of academic success, status of occupational choice, academic occupational choice, and density of student faculty role relationships relative to demand. Measures will be constructed for the elements cited. Shifts in occupational choice will be computer analyzed in terms of student and college attributes by means of contextual analysts.

303. EP011125

$10,000

COMPUTER-ASSISTED INSTRUCTION IN TEACHING NUMERICAL METHODS

Investigator—Conte, S. D.

Purdue Research Foundation, Lafayette, Indiana

Bureau Number—BR–8–E–010 Proposal date—Aug 67

Regional Research Program, OAC

Indiana Congressional District No. 2

Grant—OEG–0–8–080010–3532

FY68—$10,000

Descriptors—Computer-Assisted Instruction, Instructional Technology, Mathematics Instruction, Teaching Procedures, Teaching Techniques, Methods Research, Evaluation, Comparative Analysis, College Instruction, College Mathematics, Lecture, Fortran 4

Start date—01 Apr 68 End date—31 Oct 69

An investigation will be completed to determine the feasibility of using a computer to teach a one-semester college course in numerical methods. Subject matter for the course will be selected and prepared for use in a computer-assisted instruction (CAI) system. Measures of student achievement for the developed course will be compared with student achievement attributable to classroom lecture procedures. Effects of prior learning, ability, and achievement will be controlled. Problems associated with operation of the CAI system within a general time-shared computer system will be analyzed. Course materials will be written in FORTRAN IV using branching for reinforcement, testing, and discovery.

304. EP011138

$7,200

THE FINANCIAL SUPPORT, USAGE, DECISION MAKING AND PLANNING OF COMPUTER CENTERS IN HIGHER EDUCATION

Investigator—Chapin, June R.

Notre Dame Coll., Belmont, Calif.

Bureau Number—BR–8–1–066 Proposal date—01 Nov 67

Regional Research Program, OAC

California Congressional District Number 11

Grant—OEG–9–8–081066–0128

FY68—$7,200

Descriptors—Computers, Computer Science, Decisionmaking, Financial Support, Higher Education, Planning, Questionnaires, Surveys, Use Studies

Start date 18 Jun 68 End date 31 Aug 69

This research will seek answers to four questions concerned with the impact of expanding computer center roles on higher education. Four questions comprise the focus of the study—(1) What is the computer centers' financial support?, (2) What are the computer centers' usage patterns?, (3) Who makes the crucial computer decisions?, and (4) What changes are anticipated for computer center decision makers in the next 5 years? A questionnaire survey will be attempted with higher education institutions in USOE Region 9. Questionnaires on computer center decisionmaking and planning will also be sent to various higher education administrators, department chairmen and computer center directors. Additionally, financial data of the public institutions will be checked by data collected from State agencies.

305. EP011155
$6,209
A BIBLIOGRAPHY BOTH IN MANUSCRIPT FORM AND ON COMPUTER TAPES OF ALL
Investigator—McNamee, Lawrence F.
East Texas State Univ., Commerce
Bureau Number—BR-8-G-029 Proposal date—24 Oct 67
Regional Research Program, OAC
Texas Congressional District No. 4
Grant—OEG-7-8-000029-0060
FY68—$6,209
Descriptors—Bibliographies, English Literature, Doctoral Theses, Computers, Information Storage, English Literature Dissertations, American Universities, British Universities, German Universities
Start date—01 Jun 68 End date—31 Aug 68

This project, a continuation of USOE contract OEC-5-10-355, is to update English and American literature dissertations in manuscript form and on computer tape. The project will deal with dissertations accepted by American, British, and German Universities from 1865 to 1968. The initial bibliography contained 15,000 topics. The updated list will contain 3,000 additional dissertations. Punched cards will be prepared for each additional dissertation. Edit lists will be produced and submitted for verification to 200 universities for approval. Punched card corrections will be prepared and the data will be merged with existing data on computer tape which will be used to prepare the updated manuscript. The updated computer tape and a manuscript copy will be prepared for the U.S. Office of Education.

306. EP011163
$8,858
A STUDY FOR THE COORDINATION OF EDUCATION INFORMATION AND DATA PROCESSING FROM KINDERGARTEN THROUGH COLLEGE
Investigator—Ericksen, Gerald L.; Kennan, William W.
Minnesota State Dept. of Education, St. Paul Minnesota National Laboratory
Bureau Number—BR-8-F-001 Proposal date—15 Mar 68
Regional Research Program, OAC
Minnesota Congressional District Number 4
Grant—OEG-6-8-008001-0006
FY68—$8,858
Descriptors—Coordination, Data Processing, Information Dissemination, Information Retrieval, Information Storage, Information Systems, Manpower Needs, Planning, Professional Personnel, State Agencies, Subprofessionals
Start date 01 Jul 68 End date 30 Jun 69

The feasibility of coordinating educational information systems and associated data processing efforts in the State of Minnesota will be studied. An organization made up of key organizations involved in information technology will—(A) study the status of educational information systems in the State, (B) study needs for professional and technical personnel, (C) stimulate interinstitutional cooperation between educational agencies' data processing functions, and (D) provide leadership in the area of educational data processing for the benefit of all agencies. Subsequently, the effort envisions a statewide Governor's conference to mobilize interests and efforts in information systems encompassing discussion and planning. Finally a State plan for educational information systems will be prepared with a set of implementing instructions detailed so other States or regions may use them.

307. EP011177
$8,598
DEVELOPMENT OF A SPECIAL COMPUTER PROGRAM TO DESIGN SCHOOL BUS ROUTES
Investigator—Boyer, Roscoe A.; Ross, Tony A.
Mississippi Univ., University
Bureau Number—BR-8-D-049 Proposal date—Dec 67
Regional Research Program, OAC
Mississippi Congressional District Number 2
Grant—OEG-4-8-080049-0048
FY68—$8,598
Descriptors—Bus Transportation, Computer Programs, Programing, Scheduling, Fortran, Symbolic Programing System (SPS)
Start date 01 Jun 68 End date 28 Feb 69

A computer program previously developed to design school bus routes will be converted into another computer program language in this project. The present program, Symbolic Programing System (SPS), has limitations due to the developments in computer equipment and the demands placed on the SPS program. The SPS program will be converted to Fortran language so that there will be an increase in processing speed, a decrease in memory requirements, and production of output in the form of student bus-pass cards. The new program will be developed to produce (1) bus routes with verbal description of pick-up points, time arriving, and time returning, (2) student time cost and bus time cost, and (3) seating assignments. An operator's manual will also be produced.

308. EP011185
$10,000
CENSUS OF GOVERNING BOARDS
Investigator—Anderson, Charles J.
Association of Governing Boards of Universities and Colleges, Washington, D.C.
Bureau Number—BR–8–C–026 Proposal date—01 Aug 68
Regional Research Program, OAC
District of Columbia
Contract—OEC–3–8–080026–0054
FY68—$10,000
Descriptors—College Administration, Colleges, Demography, Geographic Location, Governing Boards, Trustees, Universities, University Administration, Census of Governing Boards, Governing Boards of Univ. and Coll., Sex Characteristics, U.S. Office of Education
Start Date 24 Jun 68 End date 28 Feb 69

Names and addresses of the members of governing boards of all 4-year colleges and universities in the United States will be obtained to analyze the boards, by size, type of institution, sex, and geographic location of board member residences. The data will be requested from presidents of the institutions, processed for computer manipulation, and computer processed to provide summaries of the data. A report containing the tabulations will be published as a U.S. Office of Education pamphlet. The card deck is to be made available to bona fide researchers for sample design.

309. EP011193
$9,469
A STUDY EXPLORING THE APPLICABILITY OF NETWORK ANALYSIS AS A MEANS OF DESCRIBING AND COMPARING SELECTED INSTANCES OF THE CURRICULUM CHANGE PROCESS
Investigator—Dill, Nancy L.; Mackenzie, Gordon N.
Columbia Univ., New York, N.Y. Teachers College
Bureau Number—BR–8–B–024 Proposal Date—67
Regional Research Program, OAC
New York Congressional District Number 20
Grant—OEG–0–8–080024–4287
FY68—$9,469
Descriptors—Case Studies (Education), Change Agents, Comparative Analysis, Conceptual Schemes, Critical Path Method, Educational Change, Innovation, Models, Networks, Analysis, New Jersey School System, PSSC Physics
Start date 15 Jun 68 End date 15 May 69

Possibilities of using network analysis as a means of describing and comparing selected instances of the curriculum change process will be studied. Use of computer techniques for treating and comparing curriculum change data will be studied. Also, selected change processes will be compared amongst each other and with a number of change process conceptualizations. The study will consist of five phases. Phase 1 will comprise recording all activities and events reported in 14 curriculum change case studies. The case studies to be considered were reported by J. L. Dionne (1965) and V. T. McQueen (1965) dealing with (1) adoption, (2) adoption and discontinuance, or (3) rejection of PSSC Physics in 11 schools and studies of three innovation attempts in a New Jersey school system, by Martin Siegel (1966). Remaining phases of the study will be concerned with—(1) encoding the activities and events by level of personnel involved and according to five conceptualizations of the change process as reported by Eli Ginzberg (1967), Egon C. Guba (1965), Kurt Lewin (1961), Gordon N. McKenzie (1964), and Everett M. Rogers (1962, (2) reconstructing the networks for each of the innovative situations, (3) preparing overlays for each of the networks, and (4) comparisons between instances of change and comparisons of the change instances with the change models.

310. EP011197
$10,000
BIOMECHANICS OF NORMAL AND TREADMILL RUNNING
Investigator—Nelson, Richard C.
Institution—Pennsylvania State Univ., University Park
Bureau Number—BR–8–B–012 Proposal date—01 Jun 67
Responsible BR. Office of Associate Commissioner, B.R. Regional Research Program, OAC
Pennsylvania Congressional District Number 23
Grant—OEG–0–8–003329–4285
FY68—$10,000
Descriptors—Biology, Human Engineering, Measurement Techniques, Mechanics (Process), Physical Education, Running, Scheefe Test, Vanguard motion analyzer
Start date 15 Jun 68 End date 31 Dec 69

The relative effects of running speed, slope, and type of surface upon the biomechanics of running will be studied. Fifteen trained runners will be photographed with a high speed 16 milimeter camera while subjects are running at (1) speeds from 10 to 25 feet per second, (2) On slopes from 12 degrees positive through 12 degrees negative, and (3) on normal running surfaces and on a motor-driven treadmill. The filmed data are to be ana-

lyzed and coded for computer analysis of biomechanics components such as stride length, stride rate, angle of leg at touch down, angle of leg shift, angle of takeoff, angle of trunk lean, time of support, and vertical and horizontal movements of the center of gravity during selected phases of the running cycle. An important byproduct of the study will be cinematographic techniques which will provide the basics for future biomechanics studies of movements included in physical education programs. Data analysis will involve determining the reliability of the measurement procedures and performance measures and evaluation of mechanics changes as speed and grade are increased.

311. EP011201

$5,500

INSTRUCTION USING EXPERIMENTS IN A COMPUTER

Investigator—Hazeltine, Barrett
Brown Univ., Providence, R.I.
Bureau Number—BR–8–A–025 Proposal date—12 Jun 67
Regional Research Program, OAC
Rhode Island Congressional District Number 1
Grant—OEG–1–8–080025–0038
FY68—$5,500
Descriptors—College Students, Computer-Assisted Instruction, Computer-Based Laboratories, Computer Oriented Programs, Computer Programs, Design, Electronics, Engineering, Engineering Education, Engineers, Models, Problems, Simulators, Synthesis, Circuit Design Problem, Field House Design Problem, Mechanics (Processes)
Start date 28 Jun 68 End date 31 May 69

Computer programs to illustrate fundamental physical design problems will be written. The purpose is to make engineering concepts more meaningful to beginning engineering students. Problems will be built around models of physical principles to be used as a set of experiments to be performed by students using a digital computer. Each of two computer design problem models will—(1) provide opportunities for students to discover and learn the implication of the principles in application, and (2) provide for synthesis which requires the students to find parameter values which are evaluated by the model to be a system yielding specific behavior desired. The programs to be developed are—(1) field house design problem, and (2) double tuned circuit design problem. The programs will be used at Brown University—Providence, Rhode Island by means of consoles on a time-shared basis. Programs to be written in Fortran IV will be made available to interested teachers and researchers. Subject matter of the problems will deal with elementary mechanics and elementary circuit theory.

312. EP011204

$9,594

PROGRAMMING FOR THE FACILE USE OF THE IBM 360 COMPUTER AS A LABORATORY INSTRUMENT IN SOCIAL SCIENCE STATISTICS COURSES

Investigator—Shapiro, Gilbert
Boston Coll., Chestnut Hill, Mass.
Bureau Number—BR–8–A–009 Proposal Date—26 Jun 67
Responsible BR.—Regional Research Program, OAC
Massachusetts Congressional District Number 8
Contract—OEC–1–8–080009–00037
FY69—$9,594
Descriptors—Colleges, Computer-Based Laboratories, Computer Programs, Higher Education, Laboratories, Laboratory Techniques, Laboratory Training, Mathematics, Sociometric Techniques, Statistical Analysis, Statistics, Undergraduate Study
Start date 01 July 68 End date 30 Dec 69

Computer programs will be developed to facilitate use of the computer as a laboratory instrument in undergraduate and graduate social statistics courses. The objective is to permit teachers to assign computer-laboratory exercises to study the mechanics of statistics. It will be assumed both teachers and students have had little or no prior computer-use experience. Simple program language will be generated so commands from the student are reduced to expressions as 'ADD X.' The design features of the programs will include accommodations for students with limited background experience as well as those with advanced statistical backgrounds. The system is intended to be published and compatible with the 360 series computers. The programs are to be modular thereby facilitating a wide variety of statistical experiments. A tentative list of the programs to be developed includes—(1) data generators, (2) scaler arithmetic, (3) matrix arithmetic, (4) Statistical subroutines (parametric and nonparametric), and (5) program control. The system will be publicized in professional journals and notices with descriptions of its features. Tapes and manuals to be prepared will be provided to requesters at cost.

313. EP011216
$4,000
COMPUTER MODELS OF STUDENT ACHIEVEMENT
Investigator—Beaton, Albert E.
Beaton (Albert E.) Associates, Princeton, N.J.
Bureau Number—BR–8–8051 Proposal date—12 Apr 68
Program Planning and Evaluation, OAC
New Jersey Congressional District No. 4
Contract—OEC–0–8–088051–3690
FY68—$4,000
Descriptors—Computer Programs, Academic Achievement, Models, Educational Opportunities, National Surveys, Individual Differences, Student Characteristics, Statistical Analysis, Research Tools, Fortran, Bureau of Research, U.S. Office of Education, Educational Opportunities Survey EOS
Start date 15 May 68 End date 15 Jul 68

A computer program which will be prepared and debugged will read, select, and accumulate data and compute correlation and regression analyses of data from the educational opportunities survey. The data to be treated will be related to individual differences of students and various factors important to individual achievement. No formal report will be prepared but the USOE project officer will participate in acceptance trials. Finished programs are to be submitted to the Bureau of Research, U. S. Office of Education.

314. EP011222
$29,829
CURRICULUM DEVELOPMENT MOBILE INSTRUCTION LABORATORY FOR EDUCATORS
Investigator—Humphries, Neil J.
Commonwealth Development Association, Harrisburg, Pennsylvania
Bureau Number—BR–8–0449 Proposal date—13 May 68
Instructional Materials and Practices Branch, DESR
Pennsylvania Congressional District No. 17
Grant—OEG–0–8–080449–4426
FY68—$29,829
Descriptors—Computer-Based Laboratories, Computer-Assisted Instruction, Teacher Education Curriculum, Inservice Teacher Education, Computer Science, Mobile Laboratories, Mobile Educational Services, Mile Plan
Start date 15 Jun 68 End date 15 Sep 68

A curriculum for a mobile instruction laboratory for teaching elementary and secondary school teachers the fundamentals of electronic data processing will be developed. The teaching plan is to encompass about 300 class-hours of computer "hands-on" experience. Technical literature and visual aids and materials available in the data processing industry will be selected and supplemented with detailed and unbiased materials (to be prepared). Computer activities, as training aids, will be investigated and documented for—use of data banks, language translation systems, essay correction programs, and other computer applications. The proposed curriculum will deal with—(1) general background and programing, (2) systems and procedures, and (3) advanced applications to individual disciplines. The curriculum will implement a concept designed to provide educators with a working understanding of current computer techniques as part of the Mile Plan (Mobile Instruction Curriculum Laboratory for Educators).

315. EP011224
$120,456
THE DEVELOPMENT OF MATERIALS FOR THE TRAINING OF SCIENCE EDUCATION PERSONNEL IN EDUCATIONAL TECHNOLOGY
Investigator—Smith, Herbert A.
Institution National Science Teachers Association, Washington, D.C.
Bureau Number—BR–8–0427 Proposal date—13 Jan 68
Responsible BR.—Research Training Branch, DHER
District of Columbia
Grant—OEG–3–8–080427–0052
FY68—$65,458; FY69—$54,998
Descriptors—Computer-Assisted Instruction, Equipment, Inservice Teacher Education, Institutes (Training Programs), Instructional Materials, Instructional Technology, Instructional Television, Media Technology, Programed Instruction, Science Teachers, Systems Approach
Start date 01 May 68 End date 28 Feb 70

An instructional package will be developed to meet a selected set of behavioral objectives for a science supervisions institute. The package will permit work with various types of hardware utilizing programed materials in an educational situation. All of the units will contain—programed textual materials, filmstrips, slides, scripts, specifications for the instructional package, a procedure for instruction presentation, and administrative directions with a list of the expected terminal behaviors and a criterion test for assessing attainment of the selected objectives. Stage 1 of the project 7–C–006 dealing with, "The Use of Educa-

tional Technology in Providing Knowledge of Educational Technology and Suggestions for its Application to Supervisors," was previously reported. This report identified behavioral objectives for the current proposed effort. Topics to be considered are—orientation to terminology, the objectives and organization of the institute, need for and description of education technology, description of learning systems (teach/learn), design and development of learning systems, school computer applications, instructional television, teacher loads and individualized instruction, problems with implementation, evaluation of educational technology (hardware and software), and sources of information.

316. EP011233

$14,517

COMPUTER PROGRAM TO CONVERT WORK ORTHOGRAPHY TO PHONEME EQUIVALENTS

Investigator—Leton, Donald

Hawaii Univ., Honolulu

Bureau Number—BR–8–0114 Proposal date—01 Jul 67

Basic Studies Branch, DESR

Hawaii Congressional District Number 2 At Large

Grant—OEG–9–8–0800114–0105

FY68—$14,517

Descriptors—Computer Programs, Development, English, Evaluation, Graphemes, Oral English, Phonemes, Reading, Simulation, Written Language

Start date 03 May 68 End date 02 May 69

A computer program will be further developed to translate printed English words into their oral equivalents. A computer program previously developed to accept printed English words as input, analyze them to identify their component graphemes and phonemes, and produce the phoneme outputs will be used. This effort will deal with—storage of exceptions, learning, and processing with the purpose of incorporating additional features in the program and testing the efficacy of the program in an operational simulation of reading. The phonemes selected will be based on (1) phonemic rules which are generated by the computer program from its analysis of unfamiliar words, and (2) accumulated probabilities recorded in a matrix of grapheme-phoneme associations. Related objectives include analysis of types of errors or inadequacy of stored rules, and analysis of redundancy in the grapheme-phoneme association matrix. Facilities at the University of Hawaii will be used for this research.

317. EP011256

$9,458

OPTIMAL USE OF A COMPUTER-BASED INSTRUCTION SYSTEM IN AN EXISTING URBAN SCHOOL DISTRICT

Investigator—Sisson, Roger L.; Stankard, Martin F.

Pennsylvania Univ., Philadelphia

Bureau Number—BR–8–B–087 Proposal date—67

Regional Research Program, OAC

Pennsylvania Congressional District Number 1

Grant—OEG–0–8–080087–3731

FY68—$9,458

Descriptors—Computer-Assisted Instruction, Computer Oriented Programs, Methodology, Operations Research, Programed Instruction, Program Improvement, School Districts, Urban Areas

Start date 24 Jun 68 End date 24 Apr 69

The purpose of this research will be to determine the best way to select and schedule students on a computer-aided instruction (CAI) system. The results will be tested by students enrolled in certain Philadelphia high schools. The system to be studied will include not only a computer-based instruction system, but also classroom-oriented instruction. Operations research methodology will be applied to this system. The results of this research should contribute to the use of CAI as an efficient operating tool rather than simply as a research vehicle. Ultimately, this research will involve four phases—(1) definition of the system, and identification and measurement of relevant factors, (2) building of a decision model of the system, (3) testing and revising the model against data from the system, and (4) use of the model to find the optimal solution for an actual case.

318. EP011257

$10,000

DEVELOPMENT OF COMPUTERIZED TECHNIQUES IN MUSIC RESEARCH WITH EMPHASIS ON THE THEMATIC INDEX

Investigator—Lincoln, Harry B.

State Univ. of New York, Albany. Research Foundation.

Bureau Number—BR–8–B–089

Regional Research Program, OAC

New York Congressional District Number 29

Grant—OEG–0–8–080089–4581

FY68—$10,000

Descriptors—Computer Oriented Programs, Computer Science, Culture, History, Indexing, Instructional Materials, Music, Music Education

Start date 30 Jun 68 End date 30 Jun 69

The purpose of this project will be to continue the development of significant new computer tech-

niques for construction of thematic indexes of music, and for exploring the use of these new techniques in other areas of music. Originally submitted as a 3-year proposal, it was revised as a 1-year investigation to cover the first year's activities of the original proposal. This prior research effort has resulted in the construction of a pilot project of a thematic index of 4,000 melodies in the 16th-century Italian repertory known as "Frottola." The project's second year of work will include (1) continued encoding and keypunching of large bodies of 16th-century music plus the necessary computer operations to organize the material into meaningful printed output, (2) continued development of new programs to permit more sophisticated citations not only of duplications but also of similarities in melodic contours, and (3) expansion of cooperation among persons engaged in thematic indexing to develop "merging" of repertories from other researchers. This research will provide techniques, information, and bodies of music for performance valuable in several areas of education. The music history researcher will have available the first large, truly workable index of a vast repertory of music intensively studied today. Also, the music librarian will have a new bibliographical tool to offer a broad public seeking specific information and identification in various repertories.

319 EP011269
$8,775
COMPUTER-BASED INSTRUCTION IN SPELLING—AN INVESTIGATION OF OPTIMAL STRATEGIES FOR PRESENTING INSTRUCTIONAL MATERIAL
Investigator—Atkinson, Richard C.
Stanford Univ., Calif.
Bureau Number—BR–8–I–026 Proposal date—04 Aug 67
Regional Research Program, OAC
California Congressional District Number 10
Grant—OEG–9–8–000026–0076
FY68—$8,775
Descriptors—Computer-Assisted Instruction, Elementary Grades, Grade 4, Grade 5, Grade 6, Individualized Instruction, Instructional Technology, Methods Research, Spelling Instruction, Teaching Methods, Teaching Procedures, Teaching Techniques
Start date 01 Apr 68 End date 30 Nov 68

Optimal strategies will be investigated for presenting words in the computer-based instruction of spelling. The study will also be concerned with various techniques for individualizing spelling content and for providing feedback to influence response to instruction. At the beginning of the school year, students from the upper grades of Costano elementary school in East Palo Alto, California will become familiar with the operation of student booths where they will be tested and instructed through headphones and teletypes by a computer located on the Stanford University campus. Each child is to be tested on a large word pool until each accumulates 48 errors that are coincident in the California State Spelling Series, the new Iowa Spelling Scale (Greene, 1954), and the 1937 Gates List of Difficulties in 3,876 words. As each child accumulates 48 errors meeting the selection criteria, he will become a participant in the experiment. Each 48-word error list will be randomly divided into "optimized" and "non-optimized" lists with a third of the words from each list to be presented each day for a block of 3 days. After retesting, the words will be presented as chosen by selection rules for the optimized and non-optimized lists, Each child will see the non-optimized words once every 3 days. The words on the otpimized list will be governed by a selection rule which chooses only words the child needs to study most. At 6-day intervals, words from the optimized list will be selected and presented at random to provide a basis for comparing the presentation strategies. At the end of the experiment, measures of final achievement will be taken followed by a delayed retention test of the entire list.

320. EP011288
$42,000
POSTDOCTORAL FELLOWSHIP PROGRAM IN EDUCATIONAL RESEARCH
Investigator—Cooley, William W.; and others
Pittsburgh Univ., Pa.
Bureau Number—BR–8–0775 Proposal date—10 May 68
Research Training Branch, DHER
Pennsylvania Congressional District Number 14
Grant—OEG–0–8–980775–4657
FY68—$42,000
Descriptors—Computer-Assisted Instruction, Curriculum Design, Educational Strategies, Fellowships, Post Doctoral Education, Research Methodology, Computer Management, Individually Prescribed Instruction, Learning Strategies.
Start date 30 Jun 68 End date 31 Aug 69

The postdoctoral fellowship program will afford an opportunity for the selected participants to engage in entensive study which will expand their capabilities in the area of research methodology. The program will further provide them with extensive research experience. A plan for individual study will be developed which will include advanced work in educational statistics, design, and

the use of the computer. Research experiences will be associated with research that is currently in progress in the "Individually Prescribed Instruction" project and problems of learning strategies, curriculum design, and computer management which are associated with that project. There will also be opportunity to explore computer-assisted instruction.

321. EP011317

$20,904

POSTDOCTORAL FELLOWSHIP PROGRAM IN EDUCATIONAL RESEARCH

Investigator—Cronbach, Lee J.
Stanford Univ., Calif.
Bureau Number—BR–8–0788 Proposal date—12 May 68
Research Training Branch, DHER
California Congressional District Number 10
Grant—OEG–0–8–980788–4678
FY68—$20,904
Descriptors—Computer Science, Educational Research, Fellowships, Independent Study, Information Processing, Mathematical Models, Mathematics, Post Doctoral Education, Psychometrics, Research Projects, Seminars, Statistics
Start date 30 Jun 68 End date 30 Jun 69

The postdoctoral fellowship program will enable promising holders of the doctorate to become more competent in conducting research pertinent to education. The program's significance will consist in giving the research worker freedom to undertake any of a variety of available activities that will increase his potential for contributing to education. In this program, the trainee will participate in research concerning the teaching and learning of mathematics. He also plans to advance his capabilities in statistics, psychometrics, mathematical and information-processing models, and computer science. The program will be individually structured to meet the trainee's interests and needs and will consist of an appropriate combination of the following activities—attending classes and seminars, participating in research projects, planning or conducting research in consultation or collaboration with faculty members, and engaging in independent study.

322. EP011320

$18,850

POSTDOCTORAL FELLOWSHIP PROGRAM IN EDUCATIONAL RESEARCH

Investigator—Cornbach, Lee J., and others
Stanford University, California
Bureau Number—BR–8–0791 Proposal date—12 May 68
Research Training Branch, DHER
California Congressional District No. 10
Grant—OEG–0–8–980791–4675
FY68—$18,850
Descriptors—Educational Research, Post Doctoral Education, Seminars, Research Projects, Independent Study, Statistical Analysis, Research Design, Computers, Fellowships, Stanford California
Start date 30 Jun 68 End date 30 Jun 69

The postdoctoral fellowship program will enable promising holders of the doctorate to become more competent to conduct research pertinent to education. The program's significance consists in its giving a research worker freedom to undertake any of a variety of activities which will increase his potential for contributing to education. The trainee in this program plans to advance his competence in statistical analysis, research design, and use of the computer. He will attempt to develop a conceptual model to guide further research efforts. The program will be individually structured to meet the trainee's interests and needs and will consist of an appropriate combination of the following activities—attending classes and seminars, participating in research projects, planning or conducting research in consultation or collaboration with faculty members, and engaging in independent study.

323. EP011353

$9,996

THE INITIAL DEVELOPMENT OF A TECHNIQUE FOR DERIVING ADDITIONAL INFORMATION FROM TEST PERFORMANCE

Investigator—Wick, John W.
Northwestern Univ., Evanston, Ill.
Bureau Number—BR–8–E–087 Proposal date—Dec 67
Grant—OEG–0–8–080087–3716
Descriptors—Cluster Grouping, Data Analysis, Patterned Responses, Research Tools, Test Interpretation, Measurement, Measurement Techniques, Similar Response Analysis, Test Results
Start date 20 Jun 68 End date 19 Jun 69

A new response analysis technique called similar response analysis will be developed as a tool for analyzing patterns of test responses. The project will be comprised of four sections dealing with—(1) theory of similar response analysis and a comparison of the technique with other pattern analysis techniques which have been developed previously by Lazarsfeld (1950-54-59-66), Lunne-

borg (1959), Guttman (1950), Gibson (1959), McDonald (1963), and Wick (1967), (2) descriptions of the item sets to be analyzed, (3) three hypothetical examples to be constructed including an illustration of item results and the matched response matrixes for small groups. Included will be the development of two computer programs to obtain matched response matrixes and reordering of the matrixes, and (4) three studies using data currently on hand dealing with achievement test results, personality inventory results, and results obtained with an attitude inventory. Results of a descriptive or theoretical nature are to be submitted to measurement-oriented journals and will also be presented as papers at professional meetings.

324. EP011356

$8,053

A PROPOSAL FOR RESEARCH ON THE DETERMINATION OF TEACHER SALARY INCREASES

Investigator—Gerwin, Donald

Wisconsin Univ., Milwaukee

Bureau Number—BR-8-E-096 Proposal date—Nov 67

Regional Research Program, OAC

Wisconsin Congressional District Number 5

Grant—OEG-0-8-080096-3717

FY68—$8,053

Descriptors—Administrative Policy, Computer Programs, Computers, Models, Planning, Salaries, Salary Differentials, Simulators, Teacher Salaries, Wages

Start date 20 Jun 68 End date 31 Dec 69

The manner of determining teacher salary increases (the decision rules used to determine when and how much to grant teachers) will be analyzed. An important aspect of the study will be the development and testing of a computer model to simulate the system for determining teacher salary increases. The completed model will be useful as a prototype planning tool for evaluating the effects of alternative administrative policies dealing with teachers' salaries. School districts in metropolitan Milwaukee are to be studied. Initially the study will deal with five to ten of the school districts with the largest enrollments. If time permits, the study will include 17 districts in Milwaukee County. Field investigations will be conducted to discover the decision rules and who makes the decisions. The field study will consist of interviews and analysis of written documents (such as salary surveys) and supplemented with informal questions by letter or phone to refine conclusions from which the model will be formulated.

325. EP011368

$4,037

STIMULUS APPROACH TENDENCIES OF LEARNERS AS A FACTOR IN INSTRUCTIONAL MATERIALS EVALUATION.

Investigator—Bruha, John J.

University of Southern California, Los Angeles.

Bureau Number—BR-8-I-081 Proposal date—68

Regional Research Program, OAC

California Congressional District Number 21.

Grant—OEG-9-8-081081-0118

FY68—$4,037

Descriptors—Electromechanical Aids, Evaluation, Evaluation Criteria, Evaluation Methods, Film Production, Films, Measurement, Media Technology, Psychophysiology, Student Evaluation

Start date 17 Jun 68 End date 31 Dec 68

A method of evaluating instructional materials will be developed which includes approach-tendencies of learners and evaluators toward the materials. Relationships will be made between evaluation statements (students and evaluators) and their session capillary pulse pressures as measured by a pulse transducer (BIO-COM model 1010). Two random sessions of the Los Angeles County Schools' Secondary Film Evaluation Committee will be chosen for selecting the population to be studied. Two of the film showings out of six or eight normally shown at each session will be used to familiarize subjects with the sensing apparatus which is to be fitted to the right index finger tip of each subject with a lead to a pulse transducer. Pulse pressure ratings will be taken for the remaining sessions for each of ten evaluators and for each film shown. In addition to capillary pulse pressure data, the overt evaluations of the materials will be collected (completed evaluation forms). Similar procedures with the same materials will also be used with two separate 11th-grade groups (Los Angeles County Schools). Pulse pressures for each session will be fed into a computer using a biomedical computer analysis program developed at UCLA to compute pulse pressures for each film for each evaluator and inter-rater reliability for each film for each group. Correlation will be obtained for each film for each group between the sum of pulse pressures and overtly stated evaluations. The films are to be analyzed in detail to determine film characteristics which generate strong approach or strong avoidance tendencies in students so that film producers will have better bases for film planning.

326. EP011393

$9,956

COUNSELOR RESEARCH TRAINING

Investigator—Long, Thomas

Altoona Area School District, Pennsylvania

Bureau Number—BR-8-8038

FY68—$9.956

Research Training Branch, DHER

Pennsylvania Congressional District No. 12

Grant—OEG-0-8-088038-4455

FY68—$9,956

Descriptors — Institutes (Training Programs), Counselor Training, Counselors, Elementary School Counselors, Secondary School Counselors, Research Methodology, Researchers, Research Design, Research Skills, Computer Science, Research Tools

Start date 24 Jun 68 End date 24 Aug 68

An institute will be conducted to train 25 selected school counselors in appropriate research systems, programs, services, and strategies. The institute will be designed to train participants to collect and analyze masses of student data available to them. Basic Fortran programing will be offered as well as methods for accessing computers using punched card or tape input. Punched paper-tape training and demonstrations will involve the use of remote teletype terminals. Included will be a discussion and demonstration of the ERIC system and its capabilities. Training will also be given in Program Evaluation Review Techniques (PERT) and Campbell and Stanley's Pre-experimental and Experimental Research Designs. The institute will be evaluated by participants and findings are to be reported. Participants will be selected from the Altoona Area (Pennsylvania) using as criteria possession of a master's degree in guidance, state certification as a guidance counselor, and full-time employment as an elementary or secondary school counselor with evidence of successful completion of at least one graduate-level statistics course.

327. EP011419

$9,233

THE DEVELOPMENT OF AN INFORMATION SYSTEM FOR TEACHER TURNOVER IN PUBLIC SCHOOLS (INCLUDING UNIFORM REPORTING AND A COMPUTER PROGRAM)

Investigator—Orlich, Donald C.

Idaho State Univ., Pocatello

Bureau Number—BR-7-H-008 Proposal date—15 May 67

Grant—OEG-8-8-070008-2001

Descriptors—Computer Programs, Labor Turnover, Occupational Mobility, Teacher Morale, Teacher Shortage, Teacher Transfer

Start date 01 Feb 68 End date 31 Jan 69

The major purpose of this study will be to duplicate the Idaho Teacher Mobility Study of 1965 which sought reasons why teachers changed their positions with further refinements in the questionnaire, so that the general model could be applicable to every State department of education in the country, or to other investigators interested in the problem of teacher mobility. Another purpose is to develop computer programs that could be utilized by IBM 1620 and IBM 1130 systems for analyzing data from questionnaires concerning reasons for teacher turnover. The research model, questionnaire and computer programs could establish a standard procedure and technique for further studies.

328. EP011429

$9,990

AN EVALUATION OF A NEW APPROACH IN DEALING WITH HIGH SCHOOL UNDERACHIEVEMENT

Investigator—Tolor, Alexander; and others

Fairfield Univ., Conn.

Bureau Number—BR-8-A-040 Proposal date—15 Mar 68

Regional Research Program, OAC.

Connecticut Congressional District Number 4.

Grant—OEG-1-9-080040-0008

FY69—$9,990

Descriptors—Achievement Tests, High School Students, Learning Motivation, Low Achievement Factors, Reinforcement, Rewards, Student Attitudes, Underachievers

Start Date 01 Sep 68 End Date 31 Aug 69

An attempt will be made to determine whether high school students who are underachievers differ from students of normal achievement in their internal-external expectancy, i.e., whether they believe that rewards follow upon their own behavior or whether they expect rewards to depend on forces that are independent of their actions. Also, the study will test the hypothesis that underachievers who are high in externality will improve in academic performance if a change toward a more internal attitude is affected by means of a computer instructional program dealing with an unrelated area, but one which provides immediate reinforcement for their behavior. This study will also make possible a comparison of the success of three approaches in the treatment of children with learning disabilities.

329. EP011455

$8,801

A STUDY OF THE EFFECTS OF AUTOMATION ON THE NATURE OF THE WORK OF THE DRAFTSMAN IN INDUSTRY, AND THE INNOVATIVE PROGRAMS OF INSTRUCTION FOR AUTOMATED DRAFTING IN SELECTED JUNIOR COLLEGES IN CALIFORNIA TO BE USED FOR CURRICULAR REVISION

Investigator—Husung, William T., Jr.

Citrus Coll. Foundation, Azusa, Calif.

Bureau Number—BR-8-I-149 Proposal date—26 Apr 68

Regional Research Program, OAC.

California Congressional District Number 25.

Grant—OEG-9-9-140149-0001

FY69—$8,801

Descriptors—Automation, Curriculum Development, Drafting, Draftsmen, Job Training, Security, Technical Occupations

Start date 27 Aug 68 End date 30 Jun 69

This study will attempt to determine the effects of automation on the needs of industry for draftsmen with general versus special training, both for entry and advancement; and the curricular revisions in vocational drafting programs in California junior colleges to meet the needs of automation. Selected industries throughout California known to employ draftsmen will be surveyed and 1% of the 22,000 draftsman in the State will be interviewed along with their supervisors to determine the effects of automation on the nature of their jobs and the training needed for them. A survey of 75 junior colleges in California will be made and 20 will be selected for visits to determine the effects of automation on the instructional programs for draftsmen, and the needs for curriculum revision.

330. EP011471

$9,796

RESEARCH DEVELOPMENT AND VALIDATION OF THE DAILY DEMAND COMPUTER SCHEDULE (DDCS)

Investigator—Ovard, Glen F.; Wheaton, Matthew D.

Brigham Young Univ., Provo, Utah

Bureau Number BR-8-H-032 Proposal date—30 Apr 68

Office of Associate Commissioner, B. R. Regional Research Program, OAC

Utah Congressional District Number 1.

Grant—OEG-8-9-080032-2013

FY69—$9,796

Descriptors—Computer Programs, Coordination, Flexible Scheduling, Individualized Instruction, Schedule Modules, School Schedules, Secondary Schools

Start date 15 Aug 68. End date 15 Feb 70

The DDCS is a system by which (1) students can be rescheduled daily facilitating their individual progress through the curriculum, (2) teachers may regroup students as needed, based upon their individual progress, (3) time is made a tool of the teacher and learner. Specific objectives: (1) To redesign and rewrite the DDCS 7040 Computer program for an IBM 360 Computer, to improve, and generalize the program for use in any size school under varying circumstances, (2) Validate the new computer schedule with the input data previously used in the forty days of consecutive operation on the 7040 program, (3) Research, test and validate the new computer program in one or more pilot schools in the field. Any secondary school interested in adopting a modular, daily, flexible schedule, designed for maximum effectiveness in an individualized, continuous progress school, will be recipients of this research.

331. EP011478

$242,108

EDUCATORS INFORMATION TECHNOLOGY SYSTEM

Investigator—Roberts, Ellis W.; and others

INTECH Corp., Wilkes-Barre, Pa.

Bureau Number—BR-9-0184 Proposal date—17 Oct 68

Basic Studies Branch, DESR

Pennsylvania Congressional District Number 17

Contract—OEC-0-9-480184-2320

FY69—$242,108

Descriptors—Computer-Assisted Instruction, Computer Science Education, Data Processing, Information Systems, Information Utilization, Teacher Education, Teachers

Start date 20 Dec 68 End date 31 Dec 69

The Educators Information Technology System (EDITS) is a third generation data processing education encompassing all phases of instruction at a central location or directly to individual school districts with case studies in actual classroom situations, demonstrating significant time and cost reductions while qualifying teachers to teach electronic data processing. Sixty educators will be trained in the fundamentals of data processing with the most recent concepts of computer technology and with laboratory exercises providing "hand-on" computer training. The EDITS project will: (1) broaden the knowledge of educators mak-

ing them aware of the impact of computers in their own lives and of existing utilization within their disciplines and (2) allow teachers to develop techniques that will implement computer information technology as an effective classroom tool and a potent administrative device within their school districts.

332. EP011479

$3,870

A SCIENTIST IN RESIDENCE IN A PUBLIC HIGH SCHOOL

Investigator—Lichten, William

Yale Univ., New Haven, Conn.

Bureau Number—BR–9–A–006 Proposal date—9 Aug 68

Regional Research Program, OAC.

Connecticut Congressional District Number 3

Grant—OEG–1–9–90006–0101

FY69—$3,870

Descriptors—College High School Cooperation, Computer Science, Computer Science Education, High Schools, Programing, Teaching Methods

Start date 15 Nov 68 End date 14 Sep 69

A Scientist in Residence program will be tried on an experimental basis. The scientist will teach physics and computer science at an urban high school for one year. The scientist will become acquainted through first hand experience with the problems of a city secondary school and the school staff and students should benefit from the scientist's technical experience in the area of scientific research. The main objective of this program will be to develop new curriculums and methods of teaching computer programing to high school students and faculty.

333. EP011489

$11,423

SPECIAL PROJECT FOR RESEARCH TRAINING IN VOCATIONAL EDUCATION: PROFESSIONAL PRE-SESSION

Investigator—Vivian, Neal E.; Moss, Jerome Jr.

Ohio State Univ., Columbus.

Bureau Number—BR–8–0704 Proposal date—20 Mar 68

Research Training Branch, DHER.

Ohio Congressional District Number 15.

Grant—OEG–0–9–450704–2304

FY69—$11,423

Descriptors—Educational Programs, Management Development, Professional Training, Research Skills, Research Utilization, Vocational Education

Identifiers—American Vocational Association, AVA

Start date 1 Sep 68 End date 1 May 69

Six three-day special research training programs are to be held concurrently as pre-sessions of the 1968 American Vocational Association Convention in Dallas, Texas. The six programs are to serve 180 persons. Their purpose is to upgrade the research and research management competencies of the participants. The areas covered will be "Planning Research Studies," "Applications of Regression Models to Problems in Occupational Education," "Applications of Analysis of Variance Techniques to Problems in Occupation Education," "Developing Data Collection Instruments," "Introduction to Computer Use in Research," and "Fundamentals of Research Management." In order to cover the proposed content adequately and maximally benefit participants, certain selection criteria will be imposed.

334. EP011491

$9,891

AN EXPERIMENTAL STUDY OF THE EFFECTIVENESS AND VALIDITY OF AN AUTOMATED RHYTHM TRAINING PROGRAM

Investigator—Ihrke, Walter R.; Chenausky, Peter

Connecticut Univ., Storrs

Bureau Number—BR–8–A–008 Proposal date—11 May 66

Regional Research Program, OAC.

Connecticut Congressional District Number 2.

Grant—OEG–0–8–000008–0227

FY68—$9,891

Descriptors—Automation, Elementary Education, Elementary School Teachers, Institutes (Training Programs), Music, Music Education, Music Techniques, Teacher Education

Start date 1 Sep 67 End date 1 Feb 69

The objectives of this study are: to determine whether automated rhythm training techniques are a valid means of acquiring the basic rhythm proficiency necessary to conduct a music period in the elementary classroom; to determine whether rhythmic skills transfer from keyboard performance to dictated written performance; and to test related programed material already developed and in existence, and to evaluate the results statistically. Students will be selected at random from a class enrolled in a Connecticut University course called "Music for the Classroom Teacher." These students will be education majors, not music majors, and will have had little or no formal training previously. Each will spend two hours per week

through a sixteen-week semester in the training laboratory. This group will be the experimental section, and the remainder of the class will be in the control section. The experimental group will be excused from regular attendance in the classroom for two half-hour periods per week, during which periods the control group will receive rhythmic training in the classroom comparable in content to that received by the experimental group in the laboratory. Post-tests and pre-tests will be used to determine the level of proficiency of both sections and provide data for comparison.

335. EP011538

$80,170

ERIC ON-LINE RETRIEVAL SYSTEM

Investigator—Summit, Roger K.; and others

Lockheed Aircraft Corp., Palo Alto, Calif.

Bureau Number—BR-9-0161 Proposal date—27 Sep 68

Library and Information Sciences Research Branch, DITD.

California Congressional District Number 10.

Contract—OEC-9-9-140161-0028

FY69—$51,500; FY70—$28,670

Descriptors—Computer Oriented Programs, Information Networks, Information Retrieval, Information Systems, Programing, Search Strategies

Start date 6 Feb 69 End date 15 Jul 70

Office of Education personnel will be provided with the experimental use of a state-of-the-art information retrieval language applied to Research in Education and Historical Reports data bases. Retrieval elements from both the Research In Education and Historical Reports files will be identified, and both files will be placed on a large random-access data storage device. A terminal installed in Washington, D.C. will be made available to Office of Education personnel to conduct interactive searches on these data bases. A final report based on the experience gained from this experiment will be submitted evaluating the applicability of on-line techniques to educational data, and describing directions of future research.

336. EP011539

$97,647

AERA 1969 RESEARCH TRAINING SESSIONS

Investigator—Popham, W. James; and others

American Educational Research Association, Washington, D.C.

Bureau Number—BR-9-0170 Proposal Date—68

Division of Higher Education Research, B. R. Research Training Branch, DHER

District of Columbia

Grant—OEG-0-9-180170-2485

FY69—$97,647

Descriptors—Educational Research, Institutes (Training Programs), Methodology

Start date 15 Oct 68 End date 15 Oct 69

This is a proposal to conduct a program of five-day, intensive research training sessions for various audiences of research producers from the most sophisticated to those whose original graduate training contained minimal research preparation. Twelve sessions will be conducted. Eight will be held February 1-5, 1969 prior to the annual meeting of the American Educational Research Association in Los Angeles. Topics covered will be: (1) research in instructional product development, (2) nonparametric methods and associated post hoc procedures in educational research; (3) the computer and natural language, (4) research on methods for improving children's learning proficiency, (5) systems approach in counseling and counselor education, (6) multivariate design and analysis in educational research, (7) anthropological methods in education research, and (8) sample free test calibration and person measurement in educational research. Four part sessions will be held March or April on the East coast. Topics will be: (1) survey research in education, (2) multiple group discriminant strategy, (3) Bayesian statistical analysis, and (4) design and analysis of comparative experiments.

337. EP011552

$9,298

RESEARCH AND THEORY ON THE EFFECTS OF INSTRUCTIONAL SEQUENCING

Investigator—Natkin, Gerald L.; and others

Bucknell Univ., Lewisburg, Pa.

Bureau Number—BR-8-B-100 Proposal date—2 Apr 68

Regional Research Program, OAC.

Pennsylvania Congressional District Number 17

Grant—OEG-2-9-480100-1005

FY69—$9,298

Descriptors—Computer-Assisted Instruction, Instructional Programs, Programed Instruction, Programed Materials, Research Projects

Start date 18 Sep 68 End date 18 Nov 69

The major purpose of this investigation is to propose and test a more comprehensive theory of instructional sequencing than has been previously available. If the theory proposed is substantiated, or leads to a more adequate theory, there will be several potential contributions to education. (1) Workers in programed and computer-assisted in-

struction will have a valuable tool for the construction of optimal and nearly optimal learning sequences, and for deciding among several possible sequences in terms of effectiveness. (2) Curriculum workers could apply the theory to determine whether a given sequence is an effective way to reach stated objectives. (3) Classroom teachers may be able to guide their planning, and test the effectiveness of existing plans, by applying the theory. The findings of these studies will be presented in a final report of the project and they will also be presented at meetings of the professional organizations, and submitted to professional journals for publication.

338. EP011562

$258,147

EDUCATION INFORMATION TECHNOLOGY SYSTEM

Investigator—Breslin, Patricia; and others

INTECH Corp., Wilkes-Barre, Pa.

Bureau Number—BR–9–0184 Proposal date—17 Oct 68

Office of Associate Commissioner, B. R. Office of Associate Commissioner, OAC

Pennsylvania Congressional District Number 11

Contract—OEC–0–9–480184–2320

FY69—$258,147

Descriptors—Computer Science Education, Electronic Data Processing, Information Systems, Teacher Education

Start date 01 Feb 69 End date 31 Dec 69

The Educators Information Technology System (EDITS), is a unique and comprehensive third generation data processing education encompassing all phases of instruction at a central location or directly to individual school districts, allowing participants to follow an all-inclusive curriculum, with case studies in actual classroom situations, demonstrating significant time and cost reductions while qualifying teachers to teach electronic data processing. By providing a broad range of high quality advanced training, responsive to changing education and manpower needs the EDITS project will: (1) Instruct teachers in the fundamentals of data processing with the most recent equipment (third generation hardware and software) thereby developing trained educators capable of teaching data processing courses. (2) Allow teachers to develop their own techniques that will implement computer information technology as an effective classroom tool and a potent administrative device, within their own school districts. The implementation of Project EDITS will dramatically demonstrate an effective technique for disseminating computer information technology to help overcome the "people gap" that presently limits the full power of this dynamic technology.

339. EP011570

$178,850

FEASIBILITY AND REQUIREMENTS FOR COMPUTERIZATION OF ELEMENTARY MUSIC INSTRUCTION THROUGH ELECTRONIC KEYBOARD INTERACTION

Investigator—Kent, William P.; Bumstead, Alec R.

System Development Corp., Falls Church, Va.

Bureau Number—BR–8–0132 Proposal date—28 Aug 67

Arts and Humanities Program, OAC

Virginia Congressional Number 10

Contract—OEC–0–9–560132–2771

FY69—$89,423; FY70—$89,427

Descriptors—Applied Music, Autoinstructional Aids, Computer-Assisted Instruction, Computer Oriented Programs, Grade 3, Individual Instruction, Music Education

Start date 1 Mar 69 End date 28 Feb 70

This project will establish the feasibility and technical requirements for computer assisted music instruction at the third grade level. The project's technical goal is to individualize keyboard instruction in a classroom configuration of 28–32 students. The proposal builds upon a 32-student station, noncomputerized, mobile van concept currently operating in the Wichita Public School System. Interactive components to be investigated in this proposal include a computer-based system which provides information to each student through headsets and visual devices (image projectors and cathode ray tubes). Interactive instructional elements to be assessed are computer-interpreted student keyboard responses and light-pen inputs. Eight tasks have been identified ranging from "Identification of Specific Student Performance Objectives" to actual testing of a prototype computer-based system. The work will be completed in several locations. The major undertaking will be performed in Wichita, Kansas, at the Kellogg School facilities which will be made available for the study by the Wichita Public School System. A mobile van, equipped with keyboards, will be provided by the Wurlitzer Company. Work will also be performed at Systems Development Corporation's Washington, D.C. Operations Center and at the Santa Monica, California computer facility. The proposed document itself includes provisions for insuring compliance with a detailed management plan, project performance schedule, and a task development plan.

340. EP011608
$80,579
ANALYSIS of 1968 SURVEY OF COMPENSATORY EDUCATION
Planning Research Corporation, Los Angeles, Calif.
Bureau Number—BR-9-9001 Proposal date—68
Program Planning and Evaluation, OAC
California Congressional District Number 28
Contract—OEC-0-9-009001-1381
FY69—$80,579
Descriptors—Compensatory Education, Disadvantaged Youth, Economic Disadvantagement, Elementary Grades, National Programs, National Surveys, Program Evaluation, Review (Reexamination), Secondary Schools
Start date 15 Sep 68 End date 30 Jun 69

This project, to be funded in two phases, deals with (1) a preliminary analysis of 1968 Survey on Compensatory Education, and (2) complete plans for final analysis of survey data. During the first phase preliminary statistical analyses are to be performed in addition to interpretation of the analyses findings. Preliminary analyses of data quality and utility are also to be provided. The second phase of the project will deal with plans for organizing the data for automated data processing. Upon review and approval by the U.S. Office of Education, the final plans are to be implemented. A final interpretative report is scheduled for June 1969 with data tape files, card files, and records resulting from the analyses. The objectives of the analyses are to determine recipients of compensatory education services under the Elementary and Secondary Education Act of 1965 (Title I, P.L. 89-10), and to determine the environments and benefits derived from such services.

341. EP011614
$9,951
SOCIOMETRIC CLIQUE IDENTIFICATION
Investigator—Kaduskin, Charles
Columbia Univ., New York, N.Y. Teachers College
Bureau Number—BR-9-B-022 Proposal date—19 Jul 67
Regional Research Program, OAC
New York Congressional District Number 20
Grant—OEG-2-9-420022-1020
FY69—$9,951
Descriptors—Cluster Grouping, Computer Programs, Data Analysis, Developmental Programs, Research, Sociology, Sociometric Techniques, Taxonomy
Start date 1 Dec 68 End date 30 Nov 69

Computer programs will be developed or adapted from existing programs to measure the density of interaction between pairs of individuals. Measures of similarity or distance obtained will be used to cluster individuals most nearly related to each other. The programs will have utility in educational sociological studies of school systems. The techniques developed will be tried out on a series of data from existing school system studies.

342. EP011633
$13,789
THE DEVELOPMENT OF A STATISTICAL EXPERIMENT SIMULATOR
Investigator—Thomas, Warren H.
State Univ. of New York, Buffalo
Bureau Number—BR-7-0581 Proposal date—8 Nov 66
Basic Studies Branch, DHER
New York Congressional District Number 39
Grant—OEG-2-9-420581-1047
FY69—$13,789
Descriptors—Computers, Data Analysis, Digital Computers, Simulation, Simulators, Statistical Studies, Statistics
Start date 2 Jun 69 End date 1 Jun 70

This project will exploit the pedagogical use of digital computer simulation in the teaching of applied statistics by providing the means for students to easily and quickly execute simulated statistical experiments so as to obtain experimental data in minutes or hours rather than in weeks or months required for "real-world" experimentation. This will permit the integration of the experimental design, experiment execution and data analysis activities within the time constraints of an academic course. The student will be informed of the general nature of a problem situation and instructed as to the types of inferences he is to obtain. He will determine how many observations he needs and in the case of many designs, he will specify the particular values for the controllable variables for each observation. The simulation model would then be executed on the computer to obtain the "experimental" results specified by the student. Understanding and retention of procedures and philosophies should be greatly enhanced by the integration of the total problem solution activity. Students should be better prepared to cope with the "real-world" problems they will encounter in their post-academic professional careers.

343. EP011640
$43,209
OPERATIONAL-ANALYSIS IN APPLICATION TO A LEARNING TECHNOLOGY FOR THE SCHOOLS
Investigator—Verplanck, William S.; and others

Tennessee Univ., Knoxville
Bureau Number—BR–9–0116 Proposal date—13 Aug 68
Basic Studies Branch, DCVR
Tennessee Congressional District Number 2
Grant—OEG–4–9–520116–0036
FY69—$43,209
Descriptors—Experimental Psychology, Learning, Literature, Operations Research
Start date 1 Apr 69 End date 31 Mar 70

This project represents the further development and continued application of a methodology designed to recover from the published literature in experimental psychology the maximal number of verified experimental results that are relevant to problems of education. This effort is aimed to make it possible to specify the procedures for achieving defined behavioral goals. The methods developed and to be further refined as they are applied, incorporate the following steps: (1) Use of an extended rigorous operational vocabulary; (2) Preparation from Psychological Abstracts of a set of IBM cards, one for each abstracted paper on experimental research on learning and performance; (3) Computer-printout of bibliographies incorporating all the papers so summarized from Psychological Abstracts, categorized within the approrpiate ones of approximately 100, selected from a total of 200 identified conventional categories; (4) Study of the orginal papers, with detailed critical analysis of the methodology of each experiment falling in a selected pertinent set of these categories; (5) Simultaneous identical analysis of a set of papers randomly sampled from the psychological literature; (6) Systematic summary in operational notation of the papers so selected from these bibliographies; (7) Search among the products of these analyses for empirical results having direct implications for the methodology of (the operations to be carried out in) the classroom; (8) Reclassification of the papers so examined on the basis of the operations performed in them; (9) Analysis parallel to (4) and (6) above using solely abstracts, and conventional rubrics; (10) the development of two sets of empirical generalizations, one based on operations and the other on conventional categories of thought, with relative evaluation of the two systems, especially with reference to the comparative usefulness of the empirical generalizations found, in their application to education. This at present constitutes the only systematic technique for the review of the experimental literature on learning that we know to have been undertaken. Its methodology now stands proven; it needs solely refinement and extended application.

344. EP011657
$68,862
METHODS OF MAXIMIZING THE LEARNING PROCESS
Investigator—Atkinson, Richard C.
Stanford Univ., Calif.
Bureau Number—BR–9–0401 Proposal date—18 Oct 68
Basic Studies Branch, DHER
California Congressional District Number 10
Grant—OEG–0–9–140401–4147
FY69—$68,862
Descriptors—Experimental Programs, Instructional Improvement, Learning Processes, Mathematical Models, Memory, Stimulus Behavior
Start date 1 Jun 69 End date 31 May 71

This project submits for consideration a three-year program of theoretical and experimental research dealing with the general topic of optimizing the learning process. The problem can be investigated in many ways, but the approach adopted here is to limit consideration primarily to simple learning tasks for which adequate mathematical models have already been developed and have been shown to be reasonably accurate. For these models, the project will derive optimal or suitable suboptimal instructional strategies. The basic idea is to solve for strategies that either maximize the amount learned in a fixed time period or minimize the time necessary to attain a prescribed level of performance. Once such strategies have been formulated, experiments will be carried out to evaluate their relative efficiency. To the extent that particular strategies prove effective, they will be incorporated into computer based instructional programs in initial reading currently in operation at the University.

345. EP011659
$40,000
BAYESIAN METHODS FOR COMPUTER-ASSISTED TESTING
Investigator—Novick, Melvin R.; Owen, Roger J.
Educational Testing Service, Princeton, N.J.
Bureau Number—BR–9–0437 Proposal date—27 Jan 69
Basic Studies Branch, DCVR
New Jersey Congressional District Number 4
FY69—$40,000
Descriptors—Computer-Assisted Instruction, Computer Oriented Programs, Probability, Probability Theory, Test Construction, Testing, Bayesian Methods
Start date 1 Jun 69 End date 31 May 71

This project outlines a two-year program of theoretical research on Bayesian methods for com-

puter-assisted testing. This research is directed specifically toward providing a theoretical answer to the question of determining what item should be administered to an examinee at each point in his examination sequence. This problem is structured by assuming one of a number of models having item difficulty and possibly item discriminating power parameters. The Bayesian method, when developed, will provide guidance as to the proper combination of these parameters and thus to the proper choice of an item. The Bayesian method is superior to other methods in that it incorporates not only current knowledge of each examinee's ability but also knowledge of the general ability level and spread of ability levels in the population from which the examinee has been selected. This "new theory" is shown to be a natural extension of regression theory for the classical test theory model, developed by Kelley more than twenty years ago.

346. EP011674

$7,220

PREDICTION OF PUBLIC SCHOOL ENROLLMENTS USING COMPUTER SIMULATION TECHNIQUES

Investigator—Schmitt, John A.; Denham, Carolyn H.

Boston Coll., Chestnut Hill, Mass.

Bureau Number—BR–9–A–024 Proposal date—4 Nov 68

Regional Research Program, OAC

Massachusetts Congressional District Number 8

Grant—OEG–1–9–090024–0107

FY69—$7,220

Descriptors—Computer Programs, Enrollment Projections, Enrollment Trends, Predictive Measurement, Predictive Validity, Public School Systems

Start date 1 Mar 69 End date 28 Feb 70

A method based on Monte Carlo computer simulation techniques will be developed for the prediction of public school enrollments from estimates of variables affecting school enrollments. Output of the simulation will consist of cumulative probability distributions of the numbers of children, by sex and by grade, who will be enrolled each year of the forecast. One will be able to make such statements as, "The output of the simulation indicates that there is a 0.80 probability that there will be no more than 275 male pupils in grade 4 in 1975." Concurrent validity and reliability of the probability distributions will be investigated. Most school enrollment prediction studies report one most likely prediction for each grade or group of grades; some report minimum and maximum predictions. But these predictions give little indication of the certainty with which the variables used in the predictions are estimated. The input required by the simulation model will include information on the certainty with which estimates are made; the model will require most probable, minimum, and maximum estimates for each variable believed to affect enrollment, with the minimum and maximum estimates defining the 0.99 probability limits of the variable. This added information should be valuable to administrators, since decisions based on enrollment predictions can affect educational expenditures and the educational achievement of the district's children. The simulation method can also be used to experiment with administrative policy changes by adjusting the input variables which would be affected by such changes.

347 EP011675

$9,890

COMPUTER SIMULATION OF HUMAN RATINGS OF CREATIVITY

Investigator—Paulus, Dieter H.

Connecticut Univ., Storrs

Bureau Number—BR–9–A–032 Proposal date—1 Dec 68

Regional Research Program, OAC

Connecticut Congressional District Number 2

Grant—OEG–1–9–090032–0108

FY69—$9,890

Descriptors—Computer Oriented Programs, Computers, Measurement, Scoring, Test Results, Test Scoring Machines

Start date 1 Apr 69 End date 31 Aug 70

The purpose of this study is to apply some of the most recent advances in natural language computing to the problem of evaluation and scoring of free responses that are elicited by tests of creativity. The Torrance Tests of Creative Thinking will be administered to a sample of 500 students and criterion measures will be obtained through the use of independent raters. Computer strategies will be developed to examine the student responses and the interrelationships between responses and criterion measures. The hypothesis will be tested that no significant differences exist between the computer ratings and the ratings assigned by human scorers. In addition, an attempt will be made to determine the degree to which scores on a given scale can be estimated by weighted composites of scores on other scales. Multiple regression analysis and cross-validation techniques will be employed to analyze the data.

348. EP011686

$104,961

STATISTICAL LABORATORY DEVELOPMENT PHOGRAM—PHASE II

Investigator—Bock, R. Darrell

Chicago Univ., Ill.

Bureau Number—BR-9-0208 Proposal date—1 Nov 68

Research Training Branch, DHER

Illinois Congressional District Number 2

Grant—OEG-0-9-230208-4628

FY69—$49,638; FY70—$38,114; FY71—$17,209

Descriptors—Computers, Data Processing, Educational Programs, Educational Research, Programing, Research Design, Statistical Analysis

Start date 1 Jul 69 End date 30 Jan 72

The purpose of this project is to improve the educational research training offered in the Department and School of Education by expanding facilities available for research and data processing in the Education Statistical Laboratory. Specific objectives are: (1) To add to and up-grade the professional personnel of the Laboratory, (2) To further develop the program library service of the Laboratory, (3) To initiate a data transmission link between the computer of the Laboratory and the computer of the University Computation Center, and (4) To extend the data input capacity of the Laboratory's computer by adding an optical answer-sheet reading device. The thorough training in research design and statistical analysis will be further strengthened by giving students enlarged opportunity to learn and to apply methods of programing and data analysis in the setting of the Laboratory.

349. EP011715

$152,464

A FEASIBILITY STUDY FOR PHASE II OF THE ELEMENTARY TEACHER EDUCATION PROJECT

Investigator—Cooper, James M.

Massachusetts Univ., Amherst

Bureau Number—BR-9-0417 Proposal date—28 Feb 69

Organization and Administration Studies Branch, DESR

Massachusetts Congressional District Number 1

Contract—OEC-0-9-310417-4040

FY69—$152,464

Descriptors—Demonstration Programs, Elementary School Teachers, Teacher Education

Start date 6 May 69 End date 30 June 70

This project will conduct a feasibility study of the Model Elementary Teacher Education Program developed by the University of Massachusetts. As a result of this project a number of questions regarding the feasibility of the METEP will be answered. The study will focus on six aspects of feasibility: (1) technical feasibility (2) economic feasibility (3) administrative feasibility (4) pedagogical feasibility (5) client acceptability of the model (6) relevance of the model for the future. Systems analyses, computer simulation, critical path methods, PPBS, and the Delphi Technique are among the strategies to be used in dealing with the above six aspects of feasibility. As a result of this feasibility study, data will be available to other institutions that might wish to adopt the METEP. Cost analyses for implementing and maintaining the model, an up-dated and revised model and performance requirements, via a critical path network, necessary to plan, program, and implement the METEP are among the expected outcomes of this project. This information and data would be essential for any institution seriously considering the implementation of the METEP.

350. EP011727

$102,500

FEASIBILITY STUDY FOR DEVELOPING THE GEORGIA EDUCATIONAL MODEL FOR ELEMENTARY TEACHER EDUCATION

Investigator—Johnson, Charles F.; and others

Georgia Univ., Athens

Bureau Number—BR-9-0477 Proposal date—28 Feb 69

Organization and Administration Studies Branch, DESR

Georgia Congressional District Number 10

Contract—OEC-0-9-200477-4043

FY69—$102,500

Descriptors—Elementary School Teachers, Models, Program Costs, Program Evaluation, Teacher Education, Teaching Models

Start date 1 May 69 End date 30 Jun 70

The purpose of this project is to describe procedures designed to produce evidence for the feasibility of undertaking the development and implementation of a model program for the preparation of elementary teachers. The products of this study would provide institutions seeking improved elementary teacher education programs. Information would include (a) detailed maangement and program techniques for development, implementation, and sustained operation, (2) the essential resources, and (c) cost data which would make possible the rational consideration of decisions among alternates dependent upon available funds. The procedures prescribed for this study include Pro-

gram Evaluation and Review Techniques (PERT), with courses of action clearly defined, and with alternates evaluated on a rational basis (including cost effectiveness). The cost data are to be processed by the staff utilizing various systems programs and computers. The study begins with the organization, orientation, and training of staff. Next, each of various teams undertakes the refinement and analysis of the design for a particular program component. The designs are then synthesized into one comprehensive management program. This plan is then subjected to detailed cost analysis.

351. EP011731

$141,319

A FEASIBILITY STUDY OF THE FLORIDA STATE UNIVERSITY MODEL FOR THE PREPARATION OF ELEMENTARY SCHOOL TEACHERS

Investigator—Dodl, Norman R.; and others

Florida State Univ., Tallahassee

Bureau Number—BR-9-0504 Proposal date—3 Mar 69

Organization and Administration Studies Branch, DESR

Florida Congressional District Number 2

Contract—OEC-0-9-190504-4044

FY69—$141,319

Descriptors—Demonstration Programs, Elementary School Teachers, Teacher Education, Teacher Education Curriculum

Start date 3 May 69 End date 30 Jun 70

The purpose of this project is to study the feasibility of developing, implementing and sustaining a program of preparation for elementary teachers designed to the specifications stated in the report, A Model for the Preparation of Elementary School Teachers, prepared at Florida State University. This model represents a radical departure from the norm: it is a performance specific, multi-institutional, individualized program. Questions of feasibility center on management of the program, cost of the program, and human adaptability to the program. Management procedures will include design and testing (1) of a simulation model for the program, (2) Of a PPB accounting system, and (3) of a computer managed instructional system. To determine human adaptability and to generate data for the simulation model, three prototypes will be developed: (1) a segment of the model curriculum; (2) a faculty development program; and (3) an inter/intra-institutional network. The study will contribute needed information on such matters as organizational arrangements both intra- and inter-institutional, on operating costs, on computer utilization, on specifications for instructional modules, and on the nature of the staff re-education problem created as a function of redefined roles, as required by a program developed to a very different set of specifications.

352. EP011736

Project Dollars—$76,429

DEVELOPMENT OF CITY III: AN OPERATIONAL SIMULATION MODEL FOR TRAINING AND RESEARCH

Investigator—House, Peter W.; and others

Environmetrics, Inc., Washington, D.C.

Bureau Number—BR-9-0515 Proposal date—10 Apr 69

Division of Higher Education Research, B.R. Research Training Branch, DHER

District of Columbia

Grant—OEG-0-9-180515-4530

FY69—$76,429

Descriptors—Decisionmaking, Demonstration Programs, Policy Formation, Population Trends, Simulation, Simulators

Start date 25 Jun 69 End date 24 Jun 70

The object of this project is to develop a highly flexible, modular, operational simulation model—called City III—that can be used to study, learn about, and experiment with the complex interactions and consequences of public and private decisionmaking within population centers. This operational simulation model will be a computer-assisted device in which a wide range of population centers can be simulated. The users of the model become the public and private decisionmakers of the simulated system and by interacting with one another in dynamic situations, change the system. The City III model will be designed in modules so that many parts of the model can be used several ways or altered very easily. For example, the model will have a number of starting points—ranging from a sparsely settled county to a multi-jurisdictional metropolitan area of over one million population. Other variable modules in the City III model will be for migration, multi-jurisdictional budgets, private land uses, public land uses, population characteristics, and government departments. The City III model will provide its users with a tool for education, training, the study of decision-making, and elementary testing of policy alternatives.

353. EP011741

$72,278

COMPUTER ANALYSIS OF THE AUDITORY CHARACTERISTICS OF MUSICAL PERFORMANCE

Investigator—Heller, Jack J.; Campbell, Warren C.
Connecticut Univ., Storrs
Bureau Number—BR-9-0546 Proposal date—27 Jan 69
Office of Associate Commissioner, B.R. Arts and Humanities Program, OAC
Connecticut Congressional District Number 2
Grant—OEG-0-9-160546-4437
FY69—$72,278
Descriptors—Audio Equipment, Auditory Perception, Aural Stimuli, Computer Programs, Digital Computers, Music Activities, Music Education, Music Techniques
Start date 35 Jun 69 End date 29 Jun 71

The purpose of this research is to perform computer analysis and synthesis of complex musical tones and to develop models of perceptual and learning processes in music. Useful models of aural perception in music will be verified by comparing the responses of a computer implementation with the responses of appropriate human listeners. Analysis of the physical attributes of sound (frequency, intensity, and harmonic content, versus time) will provide necessary information about the musical parameters of intonation, vibrato, dynamics, and rhythm. In order to analyze and synthesize complex musical tones a general purpose digital computer and appropriate analog devices will be utilized. The procedures will include the transformation of audio tapes of music to digital tapes (numerical data) via a high speed analog-to-digital converter system. Multivariate statistical techniques will be used to provide improved psychometric capability in the perceptual domain. The significance of this research is based on the belief that (1) objectifying certain parameters of musical performance will have a direct bearing on behavioral goals and methods in music education, and (2) an understanding of the total problem of human information processing requires a detailed investigation of structured non-verbal stimuli in the auditory mode.

354. EP011755
$8,227
THE VERBAL BEHAVIOR OF EDUCATIONAL ADMINISTRATORS: AN ANALYSIS OF THE LANGUAGE OF SCHOOL PRINCIPALS
Investigator—Lucietto, Lena L.; Thomas, J. Alan
Chicago Univ., Ill.
Bureau Number—BR-8-E-081 Proposal date—Aug 68
Regional Research Program, OAC
Illinois Congressional District Number 2
Grant—OEG-5-9-235081-0008
FY69—$8,227
Descriptors—Administrator Attitudes, Behavior Patterns, Linguistic Performance, Principals, Verbal Ability
Start date 1 Oct 68 End date 1 Oct 69

This study will apply new techniques of language analysis in the development of a dictionary designed for examining the linguistic behavior of administrators. It hypothesizes that there are relationships which exist between linguistic factors; and (1) personal history variables, (2) perceptions of administrative performance, and (3) measures of personal needs of administrators. Data collected by means of questionnaires will be related to verbal data from typescripts taken from tape recordings of principals speaking with their teachers in dialogue situations. The General Inquirer computer program will be utilized in applying content analysis procedures in the development of the dictionary of administrative language. Analysis of variance and other statistical procedures will be applied in the analysis of data. The study is expected to contribute to empirical knowledge of administrative behavior in two important ways: (1) by providing evidence which will help to determine the degree to which the principal's language is related to factors indicated above; (2) by providing an effective methodological scheme which may be applied by other researchers in analyzing language in other educational situations.

355. EP011808
$17,300
POSTDOCTORAL FELLOWSHIP PROGRAM IN EDUCATIONAL RESEARCH
Investigator—Bunderson, C. Victor; and others
Texas Univ., Austin
Bureau Number—BR-9-0606
Research Training Branch, DHER
Texas Congressional District Number 10
Grant—OEG-0-9-530606-4608
FY69—$17,300
Descriptors—Cognitive Processes, Educational Research, Educational Technology, Fellowships, Independent Study, Individualized Instruction, Instructional Innovation, Post Doctoral Education, Research Methodology, Statistical Analysis
Start date 1 Jul 69 End date 30 Jun 70

The postdoctoral fellowship will afford opportunity for the participant to engage in an intensive year of educational research training in the area of cognitive processes, mental abilities, and their interactions; the use of computer methods, including computer-assisted instruction, stimulus generation and control, statistical analysis, modeling

and simulation; and research involving innovative individualized instruction. Work within these areas has been and is being programmed with the participant according to an individualized plan. The primary responsibility of the Fellow will be to plan, with the director of the program, a series of activities designed to draw on the full resources of the institution to fill gaps in his own training and experience. Such activities may include attendance at seminars or formal classes at the institution, participation for training purposes in the activities of the research being undertaken at the institution, or study at special facilities or of resource material available either at the institution or elsewhere in the geographical area. It is expected that as the result of the year the Fellow will be better able to design, undertake, and evaluate research problems in the field of educational technology and make a greater contribution to educational research.

356. EP011821
$52,591
CONSTRUCTION OF A PROJECT-DESCRIPTIVE EVALUATIVE SURVEY INSTRUMENT
Investigator—Barrows, Thomas S.
Educational Testing Service, Princeton, N.J.
Bureau Number—BR-9-9016
Program Planning and Evaluation, OAC
New Jersey Congressional District Number 4
Grant—OEG-0-9-099016-4523
FY69—$52,591
Descriptors—Elementary Education, Evaluation Criteria, Federal Programs, Research Projects, Secondary Education, Taxonomy, Vocational Education
Start date 1 May 69 End date 15 Feb 70

This project presents plans for conducting the necessary background research in order to develop a taxonomy of federally-funded projects/activities and, in addition, it lists the steps that would be followed in the development and tryout of a survey instrument based on the taxonomy. The sequential project activities consist of the following: (1) construction of a detailed project/activity taxonomy consisting of a listing of the types of projects and activities currently supported in whole or in part through OE-funded elementary, secondary, and vocational programs. The taxonomy will be developed on the basis of a thorough review of project descriptions based on Title I and Title III lists provided by OE and of project applications held by five State Departments of Education to be selected by OE. The necessary arrangements for Educational Testing Service (ETS) to obtain all required information, both from OE sources and from the State Departments of Education, will be made by OE. (2) construction of a survey instrument, based on the taxonomy, for project, activity, and student information. The format will provide for codable and computer processable quantitative and/or categoriacl responses. (3) planning and implementation of a pretest of the survey instrument to insure its adequate scope and clarity. (4) analysis of pretesting results. (5) revision of the instrument on the basis of both pretest results and consultation with Federal and State Education Officers. (6) the design of a nationwide sampling plan and specifications for the analysis of data to be collected through use of the revised survey instrument.

357. EP011833
$9,609
COMPUTER-ASSISTED AFFECTIVE FEEDBACK AS A MEANS OF IMPROVING SMALL GROUP INSTRUCTION
Investigator—Hill, Richard J.; Boyd, Robert D.
Wisconsin Univ., Madison
Bureau Number—BR-9-E-093
Regional Research Program, OAC
Wisconsin Congressional District Number 2
Grant—OEG-5-9-595093-0058
FY69—$9,609
Descriptors—Behavior Rating Scales, Computer-Assisted Instruction, Curriculum Development, Feedback, Q Sort, Small Group Instruction, Teaching Techniques
Start date 1 Jun 69 End date 1 Apr 70

The study examines computer assisted affective feedback as a means of improving small group instruction. Ten experimental and ten matched control groups of four members each from a course in the School of Education will be examined in a laboratory setting. Experimental and control groups will be matched so that each pair has a common history and phase development. Groups will meet and be given an incomplete case problem to analyze for forty minutes. Experimental subjects will then interact with the computer through teletypes leading directly to the machine. Results of their ideal behavior Q sort will be compared with their perceptions of current group activity. Computer feedback will give each group member an analysis of his affective reactions and the general reactions of other subjects. Experimental groups will be told to use the feedback in helping to guide their behavior on a second case problem. Control groups will interact with the computer, be given no feedback, and work on the second study. Measures of quality of group interaction, quality of group product, and individual group member satisfaction will be made during experimentation for all

groups. Hypotheses predict that experimental groups after computer interaction will show greater improvement on these measures than will matched control groups. Through computer analysis vague feelings should be reduced to specific reactions with graded intensities. Affective channels of communication will have been structured by the computer. Affective data along with cognitive task oriented data will now become available for group discussion. This added information should allow groups to understand and guide interpersonal relationships in ways which help achieve instructional goals. Continued improvements in computer hardware will make similar analyses more readily available for improving instruction.

358. EP011846
$9,841
IMPROVEMENT OF ACADEMIC PERFORMANCE AND ATTITUDES WITHIN A COMPUTER MANAGED SYSTEM OF INDIVIDUALIZED INSTRUCTION IN A LOW SOCIO-ECONOMIC SECONDARY SCHOOL
Investigator—Nelson, Dennis Earl
American Inst. for Research in Behavioral Sciences, Palo Alto, Calif.
Bureau Number—BR–9–I–004 Proposal date—10 Jul 68
Regional Research Program, OAC
California Congressional District Number 10
Grant—OEG–9–9–140004–0024
FY69—$9,841
Descriptors—Academic Achievement, Academic Performance, Socioeconomic Status, Student Attitudes, Student Behavior, Contingency Management
Start date 14 Feb 69 End date 14 Aug 70

The purpose of the study is to attempt to influence the achievement and academic attitudes of students in a low socio-economic educational setting through the use of contingency management techniques. It is hoped that the data gathered will show that this technique is sufficiently effective to achieve the desired changes in behavior regardless of students' initial competencies or the academic subject areas involved. The study will involve approximately 60 ninth grade students entering Ravenswood High School in East Palo Alto, California in September 1968. Ravenswood High School has a student body which is predominantly Negro (85%). Half of the entering ninth grade students for 1968-69 scored below the 20th percentile in SCAT verbal scores using national norms. The students have previously been randomly selected and assigned to two Project PLAN classrooms in each of three academic areas. One classroom in each pair will be randomly assigned to the contingency management treatment condition while the other will serve as control group within that particular academic area. The base rate data will enable a determination to be made as to the initial comparability of the experimental and control students and will supply covariate information for subsequent analyses of covariance.

359. EP011850
$9,442
PRE-DECISIONAL INFORMATION SEARCH IN TEACHER SELECTION
Investigator—Sax, Gilbert
Washington Univ., Seattle
Bureau Number—BR–9–I–037 Proposal date—17 Sep 68
Regional Research Program, OAC
Washington Congressional District Number 1
Grant—OEG–9–9–570037–0031
FY69—$9,442
Descriptors—Cognitive Processes, Decisionmaking, Elementary School Supervisors, Information Storage, Search Strategies, Teacher Selection
Start date 14 Feb 69 End date 14 Dec 69

The purpose of this project is to: (1) examine the effects of certain variables related to information cost and value on information search behavior in teacher selection. (2) categorize the information-search behavior into generalized strategies for purposes of prediction and analysis. Descriptive and visual materials will be prepared to create a simulated teacher selection situation. Information regarding fictitious applicants for a teaching position in the hypothetical situation will be made available to the subjects through a computer-based information retrieval system. An experiment will then be conducted in the simulated situation. The following two independent variables will be manipulated in order to vary the constraints impinging on the behavior of decision-makers during pre-decisional search: (a) cost of information; and (b) the perceived risk involved in the decision. Measurements will be taken to determine the effects of these constraints on the following dependent variables: (a) time required to process information and reach a decision; (b) sequence of information items selected; (c) amount of information required before making the decision; (d) change in type of information sought; and (e) certainty regarding the decision made. The subjects will be 108 elementary school principals and will be assigned to a completely randomized 3×3 treatment arrangement with the two fixed independent variables. The results of the measures on the dependent variables will be tested

with ANOVA for main and interaction effects, and orthogonal comparisons will be used to test significant differences obtained by the ANOVA. The results of measures on four of the dependent variables (certainty excluded), which are assumed to comprise the strategy of search behavior, will be analyzed to determine whether a generalizable pattern exists for purposes of defining these strategies. The results of this study will provide information on how administrators search for and utilize information in selection decisionmaking. By clarifying the relationship between the information base of the decision maker and his subsequent decisions, it will be possible to develop training programs for administrators which are aimed at improving their information search and processing skills. If the reliability and validity of the selection process can thus be improved, the quality of teachers selected can be assured, commensurate with the criteria of the district.

360. EP011882
$3,385
SIMULATION WITH A DIGITAL COMPUTER VERSUS THE CONVENTIONAL LABORATORY EXPERIENCE IN CALCULUS LEVEL INTRODUCTORY PHYSICS
Investigator—Feldker, Paul F.
Saint Louis Junior Coll. District, Mo.
Bureau Number—BR-9-F-070 Proposal date—26 Feb 69
Regional Research Program, OAC
Missouri Congressional District Number 2
Grant—OEG-6-9-009070-0080
FY69—$3,385
Descriptors—Behavioral Objectives, College Curriculum, Computer Programs, Digital Computers, Laboratory Training, Physics Curriculum, Physics Instruction, Program Development, Simulation, Teaching Methods
Start date 1 Jul 69 End date 30 Jun 70

A set of simulation computer programs which can be used by freshman and sophomore college students of physics will be prepared and evaluated. The programs will be used to investigate phenomena in the area of (1) mechanics, (2) electricity and magnetism, and (3) modern physics. The design and evaluation of the simulation programs will be in terms of behavioral objectives.

361. EP011899
$10,000
DEVELOPMENT OF COMPUTERIZED TECHNIQUES IN MUSIC RESEARCH WITH EMPHASIS ON THE THEMATIC INDEX
Investigator—Lincoln, Harry B.
State Univ. of New York, Albany. Research Foundation
Bureau Number—BR-9-B-101 Proposal date—1 Jul 69
Regional Research Program, OAC
New York Congressional District Number 29
Grant—OEG-2-9-420101-1067
FY69—$10,000
Descriptors—Computer Storage Devices, Data Collection, Indexes (Locaters), Information Storage, Music, Research, Research Libraries
Start date 30 Jun 69 End date 30 Jun 70

The purpose of this project is to continue the development of significant new computer techniques in music research with emphasis on the thematic index. It is the 3d year of an original 3-year proposal, the first 2 years of which have been supported by the U.S. Office of Education. To date a file of over 30,000 melodies has been encoded and keypunched to machine-readable music representation. The file, by far the largest in the world today, serves as a data bank for use by researchers and as a base for testing and validating computer programs designed to permit citations of borrowing, duplications, and concordances within and between repertories. Support is requested for continuation of three activities described in the original proposal: (1) encoding and keypunching of large bodies of 16th-century music plus necessary computer operations to organize the material into meaningful printed output, (2) development of new programs to permit more sophisticated information retrieval, and (3) increase of cooperation among persons engaged in thematic indexing by contributing to the data bank of themes. In addition, support is requested for a new phase of the project. The Computer Center (Binghamton, New York) has placed an order with the IBM Glendale Laboratory for design of special music type faces for the high speed printer. Continued support of this research will provide research techniques, information, and bodies of music for music historians, performers and educators in a wide range of music.

362. EP011900
$9,931
THE DEFINITION OF BEHAVIORAL OBJECTIVES AND DEVELOPMENT OF NEW INSTRUCTIONAL TECHNIQUES TO PROMOTE SPECIFIED BEHAVIORS FOR THE UNIT, "THE CELL," IN THE COURSE, PRINCIPLES OF BIOLOGY
Investigator—Thomas, Charles S.; and others
State Univ. of New York, Albany. Research Foundation

Bureau Number—BR–9–B–115 Proposal date—69
Regional Research Program, OAC
New York Congressional District Number 29
Grant—OEG–2–9–420115–1068
FY69—$9,931
Descriptors—Audiovisual Programs, Behavioral Objectives, Biology Instruction, College Students, Computer-Assisted Instruction, Instructional Improvement, Instructional Technology
Start date 30 June 69 End date 30 Jun 70

This project involves as a Pilot Study the development of new instructional techniques to promote specified behaviors in a fundamental biology course unit, "The Cell." The analysis and definition of student behavioral objectives will be used as criteria in instructional improvement. The researchers will investigate the combined use of audio-tutorial methods and computer-assisted instruction (CAI) in teaching, with the latter replacing the ineffective discussion groups presently conducted. A CAI program in Coursewriter will be developed clarifying concepts students miss in discussion sessions, using varied CAI techniques. Tryouts with this program will ensue. The Pilot Study will achieve qualitative improvement for the whole course by defining behavioral objectives and developing new techniques, as well as examining the possibility of increasing critical thinking ability in general.

363. EP011901
$9,917
BUS ROUTING IN A MULTI-SCHOOL SYSTEM
Investigator—Thomas, Warren H.; Newton, Rita M.
State Univ. of New York, Albany. Research Foundation
Bureau Number—BR–9–B–124 Proposal date—Apr 69
Regional Research Program, OAC
New York Congressional District Number 29
Grant—OEG–2–9–420124–1062
FY69—$9,917
Descriptors—Bus Transportation, Computer Programs, Geographic Distribution, Programing, Scheduling, School Buses, School Systems, Student Transportation
Start date 1 Jul 69 End date 30 Jun 70

It is the objective of this research to develop a computer-based methodology for routing school buses in a multi-school system. A scheduling algorithm will be developed whereby information concerning, (1) the location of each school to be serviced, (2) the number of students at each bus stop, (3) the interstop travel time matrix, (4) the time period during which transportation is to take place, and (5) the size and number of buses available is translated into bus routes which specify school-to-school sequencing of each bus and the stop-to-stop route to be followed in traveling to each school. Each route is selected in such a manner that maximum allowable student riding time restrictions are satisfied while minimizing total bus travel time to the greatest extent possible. The output of the program will be the information required to prepare specific bus schedules and individual bus passes for each student. The models will be developed in Fortran IV for execution on a variety of computers. Overall measures for evaluating the generated schedules as total travel time, average or maximum riding time or bus load etc. will be provided. These, coupled with the inexpensive and rapid computer development of a complete set of routes make feasible the quantitative evaluation of changes in the transportation system or policy. Moreover, the computer models make operationally feasible the generation of schedules immediately prior to the start of the school year when knowledge of actual transportation is quite accurate.

364. EP011909
$319,973
DEVELOPMENT OF INSTRUCTIONAL MATERIALS FOR TRAINING IN COMPUTER USAGE
Investigator—Brislin, Patricia, B.; and others
INTECH Corp., Wilkes-Barre, Pa.
Bureau Number—BR–0–0026 Proposal date—23 Jul 69
Organization and Administration Studies Branch, DESR
Pennsylvania Congressional District Number 11
FY70—$319,973
Descriptors—Computer Science Education, Data Processing, Demonstration Programs, Electronic Data Processing, Instructional Materials, Material Development, Program Development, Public Education, Systems Development, Technical Education, Technological Advancement
Start date 2 Sep 69 End date 28 Aug 70

The Systematic Course Research in Preparatory Techniques (SCRIPT) is a project to provide a technical-educational system designed to disseminate knowledge of computer information technology for general education. Comprehensive instructional materials to be formulated will be directed toward meeting the particular needs of educators. The materials will encompass the most recent technological advances and will be organized so that future developments can be readily incorporated

into the system. Sixty educators from diverse disciplines, at the elementary-secondary levels, will participate in a demonstration program to allow the instructional materials to be tested, evaluated, and refined. Project SCRIPT will cover the following major objectives: (1) Establish a documented, integrated technical-educational system through the combined efforts of a professional research team, including educators and guidance personnel, for development of a total data processing education program with a "chain reaction." (2) Provide a methodology by which the educator can incorporate current technological advances into the system, assuring accurate and relevant instructional material. (3) Enable educators to utilize this knowledge within their immediate disciplines, conduct inservice and elementary-secondary level data processing training programs, and employ computer information technology as a potent administrative device.

365. EP011931

$9,978

DEVELOPMENT OF COMPUTER-SIMULATED LAW GAMES AND TEACHING OF LOGICAL THOUGHT IN THE FIELD OF SOCIAL STUDIES

Investigator—Jacobson, Milton D.; and others

Virginia Univ., Charlottesville

Bureau Number—BR-9-C-016 Proposal date—30 Sep 68

Regional Research Program, OAC

Virginia Congressional District Number 7

Grant—OEG-3-9-090016-0029

FY69—$9,978

Descriptors—Computer-Assisted Instruction, High School Students, Instructional Materials, Law Instruction, Logical Thinking, Secondary School Teachers, Simulation, Social Studies, Teacher Improvement, Teaching Techniques

Start date 14 Feb 69 End date 13 Feb 70

An integrated instructional system will be developed in which high school students, teachers, and computers interact, with the general objective of improving the teaching of logical thoughts in the field of social studies. The specific objectives to be imparted are (1) an understanding of the social necessities for the legal process, and (2) a familiarity with basic legal rules and procedures.

366. EP012010

$10,000

FEASIBILITY STUDY OF FULL YEAR PUBLIC SCHOOL OPERATION BY DETAILED ANALYSES OF REQUIRED SCHEDULING PLANS AND ACCOMPANYING CONSEQUENCES

Investigator—Gove, James R.; and others

Valley View School District Number 96, Lockport, Ill.

Bureau Number—BR-9-E-112 Proposal date—12 Mar 69

Office of Associate Commissioner, B.R. Regional Research Program, OAC

Illinois Congressional District Number 14

Grant—OEG-5-9-235112-0066

FY69—$10,000

Descriptors—Extended School Year, Feasibility Studies, Public Schools, Quarter System, Scheduling, School Administration, School Schedules, Year Round Schools

Start date 1 Jun 69 End date 30 May 70

The Valley View School District will make an in-depth study of variations and accompanying consequences for the "45-15" continuous school year plan. The plan breaks up the long summer vacation into four parts spread throughout the year and staggered so that the school plant is in continuous operation. It splits the total student population into four groups with each group in school for 45 school days and then on vacation for 15 school days four times a year. The advantages of the plan include: reduction of the number of students in school by one-fourth, full-year employment for teachers who want it, vacations for families in all seasons of the year, and reduction of dropouts because of sustained contact with schools. Three versions of the schedules needed for the plan will be prepared, based on priorities expressed by various individuals and groups in the community. The schedules will then be subjected to four types of detailed analysis: (1) feasibility for computer programing, (2) projected budget needs, (3) community relations, including the impact on teachers, and (4) comparison to other feasibility studies and available research. The analysis will delineate more clearly other problems that may need attention before the plan is put into operation, suggest a possible evaluation design, and provide information for other schools considering continuous school year operations.

367. EP012012

$3,153

THE USE OF THE COMPUTER AS A UNIQUE TEACHING TOOL FOR INTRODUCTORY CALCULUS

Investigator—Schmidt, Harvey E.

Saint Louis Junior Coll. District, Mo.

Bureau Number—BR-9-F-041 Proposal date—27 Dec 68

Office of Associate Commissioner, B.R. Regional Research Program, OAC

Missouri Congressional District Number 2
Grant—OEG–6–9–009041–0065
FY69—$3,153
Descriptors—Autoinstructional Methods, Calculus, College Mathematics, Computer-Assisted Instruction, Instructional Improvement, Instructional Technology, Teaching Methods
Start date 17 Jun 69 End date 10 Jun 70

The objective of this project is to identify specific conceptual difficulties students have in introductory calculus caused by their inability to perform certain necessary numerical computations by pencil and paper methods, particularly in the topical areas of limits, extrema, functional evaluation and integration, and to prepare and evaluate computer programs to be used by students to do the requisite calculations to gain a basic understanding of these topics. To facilitate evaluation, behavioral objectives will be written specifying for each selected topical area observable behaviors desired, conditions under which they will be observed, and appropriate performance criteria levels. Thus a careful experiment can be designed and carried out to test the effectiveness of computer use by students on their performance relative to these mathematical concepts. The procedure will be as follows: During 8 weeks of the summer, topics will be selected, objectives written and validated, computer programs written and debugged, and the materials prepared for student use. The materials will be used during the next school year, evaluation being made in terms of their effectiveness in producing desired educational outcomes stated as objectives. The project may stimulate others to extend this effort to an entire three-course sequence in introductory calculus.

368. EP012032

$9,863

A COMPUTER-BASED FEEDBACK MODEL FOR SIMULATION EXERCISES

Investigator—Boardman, Gerald R.; and others
Wisconsin Univ., Madison
Bureau Number—BR–8–E–167 Proposal date—7 Jun 68
Office of Associate Commissioner, B.R. Regional Research Program, OAC
Wisconsin Congressional District Number 2
Grant—OEG–5–9–595167–0014
FY69—$9,863
Descriptors—Administrative Personnel, Administrative Problems, Autoinstructional Methods, Computer-Assisted Instruction; Decisionmaking, Educational Administration, Feedback, Problem Solving; School Administration, Simulation
Start date 1 Sep 68 End date 31 Aug 69

The investigator will seek to set up a computer-based feedback model of secondary principal and superintendent in-basket simulation exercises by way of a teletype terminal. The two primary objectives of the study will be to develop a reliable model which will provide a consistent and objective feedback to simulation exercises for school administrators and to expedite the collection and analysis of data resulting from a situational in-basket procedure. The model will be refined in a pilot study with graduate students in educational administration, and then further tested with various groups of administrators and potential administrators who are participating in regional inservice workshops set up for the preparation and training of school administrators. For a reliability analysis, the scores from the computer-based feedback model will be correlated with a set of pretests measuring such attributes as professional and general knowledge, vocational interests, basic mental abilities, and basic personality factors. In addition, subjective evaluations as measured by the "Teacher Reaction Form." the "Principal Behavior Description Questionnaire, and a form called "Performance Ratings for School Principals" will be included. Moreover, scoring category and component scores compiled from a Score Sheet Matrix obtained from a manual content analysis will be used to verify reliability. It is hoped that the model will stimulate the development of additional and improved simulation materials and that it will be useful in obtaining new information about administrative decision-making behavior and the cognitive and affective context in which it takes place. Emerging from the model should be further insights into the nature of the style of administrative performance, the qualification and selection of administrators, and their preparation and training. (Author/JH)

369. EP012046

$9,975

GRAPHIC REPRESENTATION OF MUSICAL CONCEPTS: A COMPUTER-ASSISTED INSTRUCTIONAL SYSTEM

Investigator—Heller, Jack J.; Campbell, Warren C.
Connecticut Univ., Storrs
Bureau Number—BR–9–A–056 Proposal date—27 Mar 69
Office of Associate Commissioner, B.R. Regional Research Program, OAC
Connecticut Congressional District Number 2
Grant—OEG–1–9–090056–0115
FY69—$9,975

Descriptors—Computer-Assisted Instruction, Man Machine Systems, Musical Composition, Music Education, Music Techniques, Student Developed Materials, Student Participation, Teaching Techniques

Start date 16 Jun 69 End date 1 Jan 70

The purpose of this study is to develop a system of tone generation by digital and analog techniques and to test its feasibility and application to the teaching of music. The completed system will be tested at several grade levels, using both normal and exceptional children as subjects. Instead of the often frustrating traditional approach to music education, an objective of the study will be to demonstrate the usefulness of the tone-line (a graphic analog of pitch and loudness) in teaching musical concepts. A computer-assisted method of presenting musical concepts by means of graphs drawn by students and teachers is being developed. Development and testing of an operational system is proposed which will utilize a special purpose high speed analog to digital, digital to analog converter, a general purpose digital computer (IBM 360–65), and a tone synthesizer (Moog). A major project will be the design and construction of an analog plotting board and the preparation of computer software. An evaluation of the completed system will be based upon comparative student performance. For example, at each grade level tested, the ability of a non-instrument playing student will be compared by analysis of varience with the ability of a musically adept student in using the device for a particular musical task.

370. EP012049

$8,851

DESIGN FOR A HIGH SCHOOL BUSINESS GAME

Investigator—McNair, Douglas D.; West, Alfred P., Jr.

Institute for the Study of Inquiring Systems, Philadelphia, Pa.

Bureau Number—BR–9–B–032 Proposal date—1 Oct 68

Office of Associate Commissioner, B.R. Regional Research Program, OAC

Pennsylvania Congressional District Number 2

Grant—OEG–2–9–480032–1024

FY69—$8,851

Descriptors—Business Education, Computer-Assisted Instruction, Educational Games, High Achievers, High School Curriculum, Instructional Innovation, Simulation, Slow Learners, Student Needs

Start date 2 Jan 69 End date 1 Aug 69

A computer-based business game will be developed and used as a teaching tool in high school business-related courses. The game will be constructed in modules that can be linked together in a variety of ways to achieve a different game configuration for different class needs and a changing configuration over time to parallel the progression of the class. The game package will include the simulated environment and instructions for the participants, game administrator, and installation personnel.

371. EP012074

$9,281

CURRICULUM RESOURCE PROJECT FOR THE INDEXING AND DISSEMINATION OF ARTS AND HUMANITIES CURRICULUM GUIDES WHICH INCLUDE MUSIC

Investigator—Geibel, Grace A.; Shelter, Donald J.

Rochester Univ., N.Y.

Bureau Number—BR–9–B–108 Proposal date—12 Mar 69

Office of Associate Commissioner, B.R. Regional Research Program, OAC

New York Congressional District Number 37

Grant—OEG–2–70–0002

FY70—$9,281

Descriptors—Curriculum Guides, Data Collection, Documentation, Fine Arts, Humanities Instruction, Indexes (Locaters), Information Dissemination, Integrated Curriculum, Music Education, Permuted Indexes, Reference Materials, Resource Centers, Secondary Education

Start date 1 Feb 70 End date 1 Jan 71

This project is being conducted for the acquisition and indexing of course guides and courses of study for integrated arts and humanities programs which include music and are operating in secondary schools throughout the United States. The specific purpose of the project is to develop and produce a computer-generated Keyword-in-Context (KWIC) Directory Index and a Keysort Direct Index to cover approximately 500 course documents and to be made available at cost to the educating public. The development of the KWIC Directory Index will utilize principles involving computerized methods for lifting meaningful words out of the titles of the contents of course documents and mechanically generating an index. An abstract of approximately 100–150 words will be formulated for each document entry and incorporated into the Index volume. The Keysort system will afford a separate card for each document entry on which an abstract comparable to that of the KWIC publication will appear. Likewise, holes around the edges of each card will be assigned values to correspond to the indexing code of the

KWIC system. Direct sorting of cards will be permitted by inserting a sorting needle into a group of cards through a desired classification hole and raising the card body, allowing the desired cards to drop from the needle. Supporting research, involving a questionnaire sampling of approximately 50 users, will determine which form of publication (KWIC, Keysort, or both) will be most beneficial for users. It will also provide insight regarding the type of information which the user is most likely to seek through use of an index system.

372. EP012084

$31,832

THE FEASIBILITY AND APPLICABILITY OF TECHNIQUES FOR THE STUDY OF CAUSALITY IN THE SOCIAL SCIENCES

Investigator—Yee, Albert H.; Gage, Nathaniel L.

Institution—Wisconsin Univ., Madison

Bureau Number—BR–0–0112 Proposal date—69

Responsible Br.—Division of Elementary and Secondary Research, B. R. Basic Studies Branch, DESR

Wisconsin Congressional District Number 2

FY70—$31,832

Descriptors—Analysis of Variance, Correlation, Human Relations, Hypothesis Testing, Intergroup Relations, Interpersonal Relationship, Research Methodology, Scientific Research, Social Relations, Social Sciences, Statistical Analysis

Start date 1 Feb 70 End date 31 Jan 71

This project focuses upon statistical techniques, such as the frequency-of-shift-across-median (FSM) and frequency-of-change-in-product-moment (FCP) techniques that can estimate direction and source of influence among variables in which a causal relationship may be inferred (Yee and Gage, 1968). The purpose will be to test and evaluate the techniques' methodological feasibility and general applicability with respect to testing causal hypotheses in the social sciences. Areas of application will be in intergroup, intragroup, interpersonal, and intrapersonal situations where casual inferences in correlated variables may be made. By examining hand- and computer-drawn graphs and extensive statistical-computer analyses conducted for a variety of relevant data, it will be possible to see if all assumptions regarding the use of the techniques are being met. The results of the project should lead social scientists and educational researchers toward a more general capability for free manipulation of human variables. They should be especially felt in mission-oriented fields, such as education and social welfare which traditionally focus upon casual relationships.

373. EP012085

$270,975

MATHEMATICAL MODELS OF ELEMENTARY MATHEMATICS LEARNING AND PERFORMANCE

Investigator—Suppes, Patrick

Stanford Univ., Calif.

Bureau Number—BR–0–0113 Proposal date—29 Sep 69

Division of Elementary and Secondary Research, B. R. Basic Studies Branch, DESR

California Congressional District Number 10

FY70—$108,000; FY71—$162,975

Descriptors—Academic Performance, Achievement Tests, Computer-Assisted Instruction, Curriculum Development, Elementary School Mathematics, Individualized Curriculum, Learning Characteristics, Learning Processes, Mathematical Models, Mathematics Curriculum

Start date 1 Feb 70 End date 30 Jun 72

Learning and performance in elementary-school mathematics will be studied, using an individualized and computer-based mathematics curriculum. The curriculum, developed under the support of the National Science Foundation, has three major elements: a curriculum structure which classifies the problems appropriate for an elementary-school mathematics program into strands (concepts) and equivalence classes (homogeneous sets of problems within a strand), a set of rules for determining the problems to be presented to each student, and a set of rules to define the progress of a student through the structure. The program of research has three main objectives: (1) Examination of student movement through the curriculum in order to test the goodness of fit of global models that predict student movement through the structure and to revise the models to reduce empirical discrepancies. (2) Examination of the curriculum in terms of distribution of problem types (concepts) within a grade, definition and ordering of equivalence classes, and homogeneity of problems within an equivalence class, as determined from student data. (3) Investigation of probabilistic automaton models of learning and performance from a theoretical point-of-view and in terms of how the application of such models can be used to better adapt the curriculum to individual students. Student data will be obtained through the operation of 12 terminals, to be located in a disadvantaged school district. The computer facilities to implement the curriculum are available through the Stanford Computer-Based Learning Laboratory.

374. EP012088

$27,910

EFFECTS OF STATE ANXIETY AND PROGRAMMING VARIABLES ON PERFORMANCE IN COMPUTER-ASSISTED LEARNING

Investigator—O'Neil, Harold F., Jr.; and others

Florida State Univ., Tallahassee

Bureau Number—BR–0–0183 Proposal date—3 Oct 69

Division of Elementary and Secondary Research, B. R. Studies Branch, DESR

Florida Congressional District Number 2

FY70—$27,910

Descriptors—Achievement Gains, Anxiety, Computer-Assisted Instruction, Feedback, Overt Response, Programed Instruction, Response Mode

Start date 1 Feb 70 End date 31 Jan 71

The goal of this investigation will be to examine the effects of anxiety in learning. In the first study, the relationship between anxiety and implicit and overt responding to computer-assisted learning materials that use graphics will be evaluated. In the second study, the relationship between anxiety and corrective feedback on achievement will be assessed. The State-Trait Anxiety Inventory will be used to measure both trait and state anxiety (A-State). The learning materials will be presented by an IBM 1500 Computer-Assisted Instruction System which will also present the A-State scales and record subjects' responses and latencies. For the first study, response mode and trait anxiety will be the independent variables while achievement measures and A-State will be the dependent variables. The second study will focus on the effect of corrective feedback and trait anxiety on achievement and A-State. For both studies, the effect of A-State on performance will also be evaluated.

375. EP012106

$9,883

SPECIFICATIONS FOR A LOW-COST COMPUTING SYSTEM SUITABLE FOR THE HIGH SCHOOL ENVIRONMENT

Investigator—Zepko, George W.; And Others

Stevens Inst. of Tech., Hoboken, N.J.

Funding Agency Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development.

Bureau Number—BR–9–B–152

Office of Associate Commissioner, B. R. Regional Research Program, OAC

New Jersey Congressional District Number 14

Grant—OEG–2–70–0009

FY70—$9,883

Descriptors—Computer-Assisted Instruction, Computer-Based Laboratories; Computer Science Education, Computer Storage Devices, Digital Computers, Facility Requirements, Input Output Devices; Secondary School Students

Start date 2 Jan 70 End date 1 Sep 70

The purpose of this investigation is to develop specifications for a low-cost computing system which will have greater processing capability. This would mean that more student programs can be processed, hence greater student accessibility achieved. It is felt that if processing capability of inexpensive computers can be improved they could also be used for administrative functions and teacher research as well as for student instruction. These specifications are intended to serve as a guide for planning and developing effective computer systems for the high school level for less than $25,000. This is to be accomplished, hopefully, by integrating an inexpensive digital computer with low-cost peripheral equipment, thereby achieving significant improvements in processing capacity over the small computers presently used.

376. EP012113

$434,859

ERIC PROCESSING AND REFERENCE FACILITY

Investigator—Brandhorst, Wesley T.

Leasco Systems and Research Corp., Bethesda, Md.

Funding Agency—Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development.

Bureau Number—BR–0–9001

Division of Information Technology and Dissemination, B. R. Educational Resources Information Center, DITD

Maryland Congressional District Number 8

Contract–OEC–0–70–1494

FY70—$434,859

Descriptors—Educational Resources, Information Dissemination, Information Processing, Information Retrieval, Information Storage, Information Systems, Lexicography, Research Reviews (Publications), Technology

Start date 1 Nov 69 End date 31 Dec 70

The ERIC Processing and Reference Facility will support the Office of Education of the Department of Health, Education, and Welfare in its ongoing program, Educational Resources Information Center (ERIC). Processes and techniques that have proved consistent with previously established procedures furnished by ERIC Central will be continued by the Facility. The Facility will coordinate the decentralized clearinghouse system input with a centralized in-house operation for informa-

tion processing and file management. The information system will store, retrieve and reproduce tapes, documents, reports and manuals. Research in Education (RIE), Current Index to Journals in Education (CIJE), Pacesetters in Innovation, Thesaurus of ERIC Descriptors, Manpower Research, Field Reader Catalog, Current Project Information, special publications and management reports, Reading Room and Reference Service and ERIC Master File Tapes are among the major products and services for which production responsibility is assumed. The services offered by the Facility are coupled with strong interest in development and implementation of continuous system improvements. The basic structure of the ERIC system with its extensive decentralized operation places heavy reliance on its Central Processing and Reference Facility for successful technical operation of the entire network. The Facility will provide a large measure of the central coordination and communication required for ERIC to operate as a coherent system.

377. EP012114

$9,953

THE DEVELOPMENT AND EVALUATION OF AN INTERACTIVE COMPUTER SYSTEM FOR USE IN COUNSELOR EDUCATION AND ASSESSMENT

Investigator—Pepyne, Edward W.

Hartford Univ., West Hartford, Conn.

Funding Agency—Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development

Bureau Number—BR-0-A-004

Office of Associate Commissioner, B. R. Regional Research Program, OAC

Connecticut Congressional District Number 1

Grant—OEG-1-70-0006

FY70—$9,953

Descriptors—Computer Oriented Programs, Counseling, Counseling Effectiveness, Counseling Goals, Counseling Instructional Programs, Counseling Programs, Development, Evaluation

Start date 1 Oct 69 End date 31 Jul 70

Within the context of a larger Counselor Repertoire Development Program, it is proposed to develop and evaluate an interactive computer system consisting of three components: (1) A trainee-computer interactive testing program such that from a pool of verified items the computer will select by random stratified sampling an infinite number of different 25 item tests of equivalent form. (2) A supervisor-computer interaction process analysis program such that during observation of an interview or segment thereof the supervisor may code each discrete counselor and client act and at the conclusion of the interview an interaction process analysis with statistical summary and interpretive guide will be produced by the computer. (3) A simulated social interaction program in which the computer will assume the role of a client and respond differentially in terms of trainee responses in simulated interview exercised. These programs will be field tested and evaluated in counselor education programs at three universities.

378. EP012145

$7,653

A VALIDATION STUDY OF A CURRICULUM SIMULATION PLANNING MODEL FOR EDUCATION

Investigator—Anderson, Ernest G., Jr.; and others

Massachusetts Univ., Amherst

Funding Agency—Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development

Bureau Number—BR-0-A-023

Regional Research Program, OAC

Massachusetts Congressional District Number 1

Grant—OEG-1-70-0010

FY70—$7,653

Descriptors—Computational Linguistics, Computer Science, Elementary School Curriculum, Mathematical Logic, Mathematical Models, Predictive Validity, Research and Development Centers, Simulation

Start date 15 Jan 70 End date 15 Nov 70

The study proposes to validate one or more computer simulation models in education currently operating at the University of Massachusetts. The study will concentrate on the areas of science and mathematics for the school years 1967-69, for the ex post facto portion of the study, using data available at the Learning Research and Development Center, University of Pittsburgh. This data will be processed into the computer simulation model and the simulation run for a period of three simulated years. The first two years will be treated as an ex post facto design study and compared with records at L.R.D.C. The last year of the computer run will be used in the experimental research design study to be conducted during the school year 1969-70. This study will show that a computer simulation program can be made to successfully predict the flow of individual students through an educational program so that educators can have one more tool to test new ideas or modifications of existing programs and can see what problems may be encountered.

379. EP012147

$9,899

TRANSLATION OF CAI COURSE FOR TEACHERS OF ELEMENTARY SCHOOL MATHEMATICS: DEVELOPMENT OF MATERIALS PHASE

Investigator—Suydam, Marilyn N.; and others

Pennsylvania State Univ., University Park

Funding Agency—Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development

Bureau Number—BR-0-B-008

Regional Research Program, OAC

Pennsylvania Congressional District Number 23

Grant—OEG-2-70-0016

FY70—$9,899

Descriptors—Computer-Assisted Instruction, Culturally Disadvantaged, Elementary School Mathematics, Inservice Teacher Education, Instructional Materials, Mathematics Instruction, Mathematics Teachers, Spanish Speaking, Translation

Start date 2 Feb 70 End date 30 Sep 70

It is proposed that a computer-assisted instruction inservice education course on the content and teaching of elementary school mathematics, which was developed under previous federally funded projects, be translated into Spanish and conceptually adapted for presentation to Spanish speaking teachers. The future uses of the program will be determined. The feasibility of developing the materials as a phase separate from computer input and storage will be evaluated. It is expected that the Spanish translation of a CAI course can be used to provide inservice education for teachers of groups of children who will be increasingly disadvantaged if the background of those teachers is not improved. If the development of the materials phase can be effectively accomplished separately from the computer input phase, the preparation of CAI materials will be facilitated. The potential of CAI as a valuable tool for promoting learning should therefore be advanced. Procedurally, guidelines will be developed. The course and accompanying materials will be translated and conceptually adapted and recoded. Spanish speaking students will review materials; and concurrently, sites for use will be determined.

380. EP012148

$9,650

THE FEASIBILITY OF COMPUTER-ASSISTED COLLEGE SELECTION AS A GUIDANCE COUNSELING AID

Investigator—Kardash, William J.; Mitchell, Susan E.

Creative Concepts, Inc., Bethesda, Md.

Funding Agency—Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development

Bureau Number—BR-0-C-008

Regional Research Program, OAC

Maryland Congressional District Number 8

Grant—OEG-3-70-0008

FY70—$9,650

Descriptors—College Bound Students, College Choice, Comparative Statistics, Computer Oriented Programs, Counselor Attitudes, Counselors, Decisionmaking, Guidance Counseling, High School Students, Student Placement

Start date 19 Jan 70 End date 18 May 71

This study will analyze and determine the feasibility of using a computerized college selection service for high school students. It is anticipated that computer-assisted college selection will free guidance counselors and students from the clerical drudgery associated with college selection, thereby permitting them to analyze, in greater detail, those schools for which the student is best suited. One thousand high school seniors will be randomly selected from among the public school systems in Region III, U.S. Office of Education. Each senior will complete a questionnaire detailing his qualifications for college admission and preferences for college characteristics. This information will be matched to a computerized college data bank. The computer will identify ten schools which most closely approximate the student's interests and abilities. Additionally, each cooperating counselor will complete a questionnaire inquiring into the counselor's "level of satisfaction" with each student's college selections as determined by the computer. This will permit a comparison of the counselor's subjective opinions with the objective selectivity employed by the computer. This study will also develop comparative statistics about the preferences and trends of the sample. This information will be disseminated to selected groups of school administrators to assist in long-range planning.

381. EP012168

$10,000

DEVELOPMENT OF A SEQUENTIAL TEST OF NONPERFORMING MUSICAL BEHAVIORS

Investigator—Radocy, Rudolf E.

Pennsylvania State Univ., University Park
Funding Agency—Department of Health, Education, and Welfare, Washington, D.C. National Center for Educational Research and Development
Bureau Number—BR–0–B–004
Regional Research Program, OAC
Pennsylvania Congressional District Number 23
Grant—OEG–2–70–0018
FY 70—$10,000
Descriptors—Aural Stimuli, Behavioral Objectives, Behavioral Science Research, Computer-Assisted Instruction, Instructional Media, Music Education, Visual Stimuli
Start date 2 Mar 70 End date 1 Nov 10

The purpose of this research is to develop a valid criterion-referenced test of three-nonperformance areas in music: pitch discrimination, rhythm discrimination, and interpretation. Such a test would meet the need for a measuring device to evaluate these areas in relation to the instructional objectives of a college. Test items will be developed and formulated by the investigator and validated by the music education faculty of the Pennsylvania State University. The computer will score the test and make the data available for evaluation. The report will provide a skeletal framework for other institutions interested in developing computerized criterion-referenced music tests.

382. EP012241
$150,000
PILOT STATE DISSEMINATION PROGRAM
Investigator—Baum, Milt; and others
Oregon State Board of Education, Salem.
BR–0–0764
National Center for Educational Communication (DHEW/OE), Practice Improvement Branch
Oregon Congressional District Number 2
OEC–0–70–4755
FY70—$150,000
Communications/Computer Programs/Information Dissemination/Information Networks/Pilot Projects/State Departments of Education
Start date 25 Jun 70 End date 25 Dec 71

A computer based chain of interpersonal communication links between a State Board of Education (SEA) and local school districts will be developed and maintained. This chain will allow for a two-way flow of validated educational information. This pilot program will provide for: (1) face-to-face linkage through people-to-people services, (2) a network of two-day dissemination among all educational agencies in the State, (3) technical development of a computer-based one-stop center for exemplary information resources and staff development for TV programing, (4) an effective system for collection and evaluation of instructional objectives, indexes, catalogs, and referral lists, (5) coordination of dissemination efforts carried out under various Federal authorizations, and (6) retrieval staff responsible for assisting team members and local school personnel in collecting information. The study will involve the SEA staff, two intermediate education districts and their component local school districts, and two community colleges. Both areas will be connected to the dissemination program by networks of tele-processing terminals and television. Two field agents will service these areas, and two retrieval team members will work with the Director of SEA. Consultants and experts from various sources will be utilized as needed.

383. EP012253
$10,000
COMPUTER-BASED RESOURCE UNITS IN PRE-CALCULUS MATHEMATICS
Investigator—Rocjhill, Theron D.
State Univ. of New York, Albany, Research Foundation
BR–0–B–110
Regional Research Program, OAC
New York Congressional District Number 29
OEG–2–70–0045
FY70—$10,000
Computer-Assisted Instruction/Computer Programs/Individualized Instruction/Mathematics Instruction/Resource Units
Start date 15 Jun 70 End date 30 Jun 71

An individualized instructional program in pre-calculus mathematics will be developed and evaluated. Computer-based resource units will be used to design individual instructional units based upon the student's background and understanding of each pre-calculus topic. Instruments for evaluating student understanding of each topic will also be developed and evaluated. Behavioral objectives for each pre-calculus unit will be determined, and pre-tests based upon these objectives will be constructed. Appropriate teaching materials and activities for each objective and learner characteristics will be selected. A computer program will be written for each unit, based upon each student's pre-test answers and background characteristics as input, and utilizing the decision of experienced teachers, will provide printed output of an individually designed instructional unit. Each computer-based resource unit will indicate materials to be used by the student, assignment to be completed, and other activities to be carried out. The computer-based resource units will be developed during the

summer of 1970, class tested and revised during the 1970 fall semester, and class tested again during the 1971 spring semester.

384. EP012270
$4,988
RESEARCH AND DEVELOPMENT FOR INTERACTIVE TEACHING OF RUSSIAN VOCABULARY
Stolurow, Lawrence M.
Harvard Univ., Cambridge, Mass.
BR–0–A–055
Regional Research Program, OAC
Massachusetts Congressional District Number 8
OEG–1–70–000055–0016
FY70—$4,988
College Curriculum/Computer-Assisted Instruction/Language Instruction/Linguistics/Russian/Second Language Learning
Start date 15 Jun 70 End date 15 Jun 71

A computer-assisted instruction system will be developed for teaching Russian vocabulary. The vocabulary is organized around the Russian lexical root structure, and the text containing the vocabulary allows the student to choose his own learning path. The system will gather and analyze data for basic study in second language acquisition, and will serve as a model for further systems in other languages. The project will demonstrate that principles of programed instruction can be extended to "free" systems, where students can conduct their own education. Procedures to test the student's foreign language competence will be developed.

385. EP012271
$8,905
AN EXAMINATION OF THE EFFECTS OF A NEW CURRICULUM TECHNIQUE ON RETENTION AND UNDERSTANDING
McConkie, George W.; Dunn, Bruce R.
Cornell Univ., Ithaca, N.Y.
BR–0–B–084
Regional Research Program, OAC
New York Congressional District Number 33
OEG–2–70–0037
FY70—$8,905
Analysis of Variance/Computer Assisted Instruction/Concept Formation/Psychological Studies/Recall (Psychological) / Research / Secondary School Students
Start date 30 Jun 70 End date 31 May 71

Some of the recent research from psychology which illustrates the importance of organization of information for its subsequent recall will be summarized. An innovative structural communication self-instructional technique and its similarities and differences in comparison with the research mentioned above will be described. A study designed to test the effectiveness of organizational variables in promoting recall for a study unit and to compare the effects of several types of organizations produced during learning will be described. One hundred sixty-eight students will be selected from juniors and seniors enrolled in high schools in the area studied. They will be chosen randomly from a population who have little knowledge of the subject matter used in the study. Three units from materials provided by a communications institute and written for high school level students will be used. The statements of important concepts and facts will be printed on computer cards, one concept per card. The experiment will involve seven experimental conditions, requiring seven groups of 24 students each. Students will sort the information they receive and will be asked to write down as many of the main concepts and facts as they can remember. Recall will be scored according to the number of concepts and facts recalled. The scores will be subjected to a two-way analysis of variance.

386. EP012378
$16,410
PREPARATION OF A FILMSTRIP UNIT ON BASIC MEASUREMENT PRINCIPLES
Fremer, John J., Jr.
Educational Testing Service, Princeton, N.J.
BR–0–9050
Research Training Branch, DHER
New Jersey Congressional District Number 4
OEC–0–70–4777
FY70—$16,410
Budgeting/Computer Oriented Programs/Data Collection/Decisionmaking/Educational Games/Educational Research/Evaluation Techniques/Problem Solving/Simulation/Teamwork
Start date 30 Jun 70 End date 30 Jun 71

The aim of the proposed project is to develop a computerized game which simulates the experience of a research-evaluation assistantship or praticum. Teams (3-4 members each) will be given the task of choosing the "best" among several given educational alternatives, and an experimental budget. In order to facilitate a decision, these teams can perform any experiment they wish by using a computer simulator to generate matrices of scores on specified predictor and criterion variables under various treatment conditions corresponding to the alternatives given. The teams are free to seek more information about the context of the problem from the information bank, acquire more skills in the required techniques by entering a training module for a short course, or to request expert assistance

from the team of consultants incorporated in the game. However, each of the above alternatives has a cost attached, and the teams must choose among alternatives in a specified time without exceeding their experimental budget. The decision, once obtained, will be entered into the computer which generates a "payoff matrix" comprised of the value of each criterion and the total cost (including experiments) of operating that decision in the entire system for a year. A unique system will be used to declare game winners and to illustrate the relative efficacies of the analytic strategies used by the teams.

Elementary and Secondary Education Act—Title IV—Cooperative Research Act

Regional Educational Laboratories and Research and Development Centers

Individual projects conducted at the Regional Educational Laboratories and at the Research and Development Centers are listed on the following pages. Costs are not given for those projects which are conducted as part of the basic work of a laboratory or center, since basic support funds for each of these organizations is appropriated by USOE as a single line item. However, as with other eligible institutions, the laboratories and centers can apply to USOE for additional support for specific projects. The funds awarded for these additional projects are listed on the following pages.

Regional Educational Laboratories

The Regional Educational Laboratories supported by the Office of Education are designed to bridge the gap between research findings and actual classroom practice. They each have their own governing boards, and staffs, develop their own policies and directions with the result that each laboratory is somewhat unique. Currently, there are 15 Educational Laboratories located throughout the United States which are developing tested alternatives to traditional educational practice. The Educational Laboratories are funded under provisions of the Elementary and Secondary Education Act, title IV, which amended the Cooperative Research Act.

FY66	FY67	FY68	FY69	FY70	FY71	Total
$9,678,000	$17,713,000	$22,927,000	$23,410,000	$25,106,000	$24,406,000	$123,240,000 [1]

1. This is the basic support provided by USOE to the laboratories

Regional Educational Laboratories

Appalachia Educational Laboratory (AEL)
1414 Kanawha Boulevard
Charleston, West Virginia 25325
Major program interests: To help rurally isolated school districts upgrade the quality of education through the establishment of "educational cooperatives" so the districts may share technical equipment, mobile facilities, and other resources.

Center for Urban Education (CUE)
105 Madison Avenue
New York, New York 10016
Major program interests: To improve educational practice in northern metropolitan school systems through programs that insure literacy in the early grades, promote teacher competence and morale, and assist schools to integrate their facilities and use mass media more effectively.

Central Midwestern Regional Educational Laboratory (CEMREL)
10646 St. Charles Rock Road
St. Ann, Missouri 63074
Major program interests: To develop curriculums in mathematics and aesthetics for students in grades K–12; to demonstrate computer-assisted instruction for rural schools; to design teaching strategies for use with special student populations; to develop computer applications to serve educators in regional and State school planning, administration, and instruction.

Eastern Regional Institute for Education (ERIE)
635 James Street
Syracuse, New York 13203
Major program interests: To develop a model of individualized instruction in which the total resources of a school are harnessed to support the program; to design a system for installing and monitoring a new curriculum in schools of diverse characteristics.

Education Development Center (EDC)
55 Chapel Street
Newton, Massachusetts 02160
Major program interest: To develop programs designed to help specific communities to improve the quality of their schools, including the establishment of resource teams which can help each community in such areas as curriculum development, pre- and inservice training of teachers, and community attitudes.

Far West Laboratory for Educational Research and Development (FWLERD)
Major program interests: To improve the instructional skills of experienced teachers by developing self-instructional course packages based on microteaching techniques; to improve the means by which school personnel are informed about tested alternatives in dealing with educational problems.

Mid-Continent Regional Educational Laboratory (McREL)
104 East Independence Avenue
Kansas City, Missouri 64108
Major program interests: To develop self-directed learning among a general student population, emphasizing the development of programs to train teachers in skills which foster self-directed learning in students.

Northwest Regional Educational Laboratory (NWREL)
400 LINDSAY BUILDING
710 Southwest Second Avenue
Portland, Oregon 97204
Major program interests: To develop strategies for training instructional leaders to instruct other professionals in the use of innovative and promising instructional practices; to improve the quality of instruction in small rural schools by developing individualized course materials and guidance programs; to aid agencies concerned with educating culturally different children by developing model school programs.

Regional Education Laboratory for the Carolinas and Virginia (RELCV)
Mutual Plaza
Durham, North Carolina 27701
Major program interests: To improve higher education in the Carolinas and Virginia by training personnel to apply institutional research and planning processes within colleges and universities; to select and install new educational materials and methods developed across the country in the elementary and secondary schools of the three States.

Research for Better Schools, Inc. (RBS)
121 South Broad Street
Philadelphia, Pennsylvania 19107
Major program interests: To field test and further develop a system of Individually Prescribed Instruction; to develop "research implementation" personnel to assist school administrators in identifying and solving educational problems

Southeastern Education Laboratory (SEL)
3450 International Boulevard
Hapeville, Georgia 30054
Major program interests: To improve communication skills among educationally disadvantaged whites and Negroes in rural and urban schools; to improve the interpersonal relations in disadvantaged schools between teachers, between students, and between teachers and students.

Southwest Educational Development Laboratory (SEDL)
800 Brazos Street
Austin, Texas 7876.
Major program interests: To develop programs in which the teacher, the instructional program, materials and activities are structured to meet the unique needs of Mexican-Americans, Negroes, and French Acadians; to develop applications of computer technology which meet the management needs of individual schools and the instructional needs of individual students.

Southwest Regional Laboratory for Educational Research and Development (SWRL)
11300 La Cienega Boulevard
Inglewood, California 90304
Major program interests: To develop a coordinated primary grade curriculum that includes communication skills, problem solving, and humanities elements; to develop a computer-manager instruction system to aid the teacher, and a computer-based planning system to assist the school administrator in decisionmaking; to develop instructional materials to train school personnel who use SWRL-developed products.

Southwestern Cooperative Educational Laboratory (SWCEL)
117 Richmond Drive, NE
Albuquerque, New Mexico 87106
Major program interests: To develop an improved first year school experience in the language arts with initial emphasis on oral language for Mexican-American and Indian children.

Upper Midwest Regional Educational Laboratory (UMREL)
1640 East 78th Street
Minneapolis, Minnesota 55423
Major program interests: To develop new methods of teacher training which will improve teacher competency; to develop inservice programs to prepare school staffs to work more effectively with new curriculum and changing patterns of school organization.

Regional Education Laboratories—Projects

387. EP000348

$2,561,306

REGIONAL EDUCATIONAL LABORATORY FOR THE CAROLINAS AND VIRGINIA

Investigator—Hopkins, Everett

Institution—Regional Education Lab. for the Carolinas and Virginia, Rougemont, N.C.

Bureau Number—BR–6–2556 Proposal date—66

Responsible Br.—Laboratory Branch, Del.

Virginia Congressional District Number 4

Contract OEC–2–7–062556–3079

FY68—$697,878; FY69—$820,000; FY70—$503,747

Descriptors—Educational Resources, Facilities, Interstate Programs, Laboratories, Regional Laboratories, Regional Programs, Resource Centers, Southern States

Start date 15 May 66 End date 31 May 70

The central mission of the regional educational laboratory for the Carolinas and Virginias is that of engineering model programs, systems, and projects through which the findings and implications of research can be effectively utilized in accelerating the rate of constructive change and innovation in educational institutions. The current focus of RELCV is on higher educational institutions within the region, and its initial emphases are on institutional research, environmental assessment, computerized systems, long range planning, and decisionmaking. At the elementary and secondary levels, the RELCV emphasis is on IPI, and at the preschool level, the emphasis is on the improvement of instruction of culturally disadvantaged children with nonstandard English background—making maximum use of closed circuit television. The several RELCV program components, activities, and projects are at various stages of development. Whereas the institutional research training program is well underway, other activities such as computerized systems and the community college component are now being initiated.

388. EP000811

$1,662,500

SOUTH CENTRAL REGION EDUCATIONAL LABORATORY

Investigator—Delon, Floyd G.

South Central Regional Education Lab. Corp., Little Rock, Ark.

Bureau Number—BR–6–2100

Proposal Date—66

Laboratory Branch, DEL.

Arkansas Congressional District Number 2

Contract—OEC–4–7–062100–3074

FY66—$180,705; FY67—$451,000; FY68—$710,728; FY69—$320,067

Descriptors—Economically Disadvantaged, Educational Improvement, Educational Needs, Educational Objectives, Educational Opportunities, Educational Planning, Educational Programs, Innovation, Laboratories, Poverty Programs, Regional Cooperation, Regional Laboratories, Regional Programs

Start date 15 May 66 End date 31 Aug 69

This description of programs currently operating in the South Central Region Educational Laboratory. The overall objective of these programs is the development, evaluation and diffusion of compensatory education programs designed to improve the basic skills and self-concepts of rural culturally disadvantaged children at the early childhood level in Negro, Indian, and Caucasian subcultures. The laboratory effort is divided into three major programs—(1) the development of home-school coordination programs involving parents in assisting their preschool children "to learn how to learn," (2) the field testing and comparison of new compensatory kindergarten programs, the development of a research-based curriculum for day care centers, and research on pupil achievement in a socially integrated private middle class kindergarten, and (3) the field testing of programed instruction procedures, including English as a second language and computer-assisted instruction (CAI)

in mathematics, in Negro primary schools. An additional program of support activities includes evaluation, modification, and eventual development of measurement instruments for the assessment of psychological and sociological variables of preschool and primary school children and the development of a library and materials center for early childhood compensatory education.

389. EP000814

$10,210,256

SOUTHWEST REGIONAL LABORATORY FOR EDUCATIONAL RESEARCH AND DEVELOPMENT

Investigator—Schutz, Richard

Institution—Southwest Regional Educational Lab., Inglewood, Calif.

Bureau Number—BR–6–2865 Proposal Date—66

Responsible Br.—Laboratory Branch, Del.

California Congressional District Number 31

Contract—OEC–4–7–062865–3073

FY Funding—FY66—$894,725; FY67—$1,570,000; FY68—$2,235,000; FY69—$2,486,726; FY70—$3,023,805

Descriptors—Administration, Communication Skills, Educational Improvement, Laboratories, Language Arts, Planning, Problem Solving, Regional Laboratories, Training

Start date 16 Jun 66 End date 30 Nov 70

The Southwest Regional Laboratory has, since its inception, been committed to a programmatic approach to the solution of educational problems which is, further, oriented to the production of tested products which can be used effectively by teachers and administrators. Currently, the laboratory is designing and developing instructional materials in the areas of communication skills and problem solving skills for pre-school and primary level children. In the communication area, SWRL is developing oral language development procedures, read-and-listen books, reading books, specific lessons on isolated skills, and teaching techniques suggested for use of the materials. In the problem solving area, the laboratory is developing a new curriculum to teach children strategies to solve verbal and non-verbal problems. The laboratory is also designing a computer-based, on-line system to aid the school administrator in collecting and analyzing pertinent information which will provide the data for decisionmaking. A computer-based instructional management system that assists the teacher in monitoring individual pupil progress and that allows her to diagnose and to remediate learning difficulties is also being developed.

390. EP000815

$10,318,690

RESEARCH FOR BETTER SCHOOLS

Investigator—Becker, James W.

Institution—Research for Better Schools, Inc., Philadelphia, Pa.

Bureau Number—BR–6–2867 Proposal Date—66

Responsible Br.—Laboratory Branch, Del.

Pennsylvania Congressional District Number 1

Contract—OEC–1–7–062867–3053

FY66—$1,466,439; FY67—$603,377; FY68—$2,094,335; FY69—$2,757,589; FY70—$3,396,950

Descriptors—Administration, Development, Educational Improvement, Educational Research, Evaluation, Graduate Study, Individual Instruction, Individualized Programs, Information Systems, Laboratories, Planning, Program Coordination, Regional Laboratories, Regional Programs, School Improvement

Start Date 16 Jun 66 End Date 30 Nov 70

The activities of the Regional Educational Laboratory, initially established in March 1966, will be continued. Called "Research for Better Schools" (RBS), the laboratory has defined its mission as designing, developing, testing, and diffusing instructional systems that allow schools to provide the content, scope, sequence, and variety of educational experiences which are truly suitable to the total range of abilities and requirements of students. As its initial effort within this mission framework, RBS is field testing and further developing a system of Individually Prescribed Instruction. In this program, RBS is monitoring five demonstration schools with IPI programs in reading and mathematics, and has assisted 21 additional schools to adopt IPI math. It has also begun to develop and screen science and other subject materials for use in the program and is developing a programed curriculum for training teachers in IPI principles and methods. Work is underway towards creating an automated learning management system and a computer-assisted instruction mode of IPI. RBS has also begun a program to test the effects of introducing a research implementation team into a school system to assist in decisionmaking. The laboratory is helping to establish experimental teams in the region and is providing training programs for the team members.

391. EP000819

$7,137,738

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

Investigator—Fish, Lawrence

Institution—Northwest Regional Educational Lab., Portland, Oreg.

Bureau Number—BR-6-2871 Proposal Date—66

Responsible Br.—Laboratory Branch, Del.

Oregon Congressional District Number 3

Contract—OEC-4-7-062871-3059

FY66—$5,160,610; FY67—$1,350,706; FY68—$1,565,525; FY69—$1,863,473; FY70—$1,841,242

Descriptors—Administration, Development, Educational Improvement, Educational Policy, Educational Research, Effective Teaching, Evaluation, Innovation, Laboratories, Minority Groups, Planning, Program Coordination, Regional Laboratories, Regional Programs, Rural Education

Start date 16 Jun 66 End date 1 Jun 71

This is a description of activities currently operating in the Northwest Regional Educational Laboratory. Three major programs are underway and two are planned. In the first program, Developing Instructional Leadership to Improve Teacher Competencies, inservice and preservice teacher training activities utilizing instructional systems will equip teachers with strategies that enlarge pupils' inquiry, reasoning and questioning capabilities. In the second program, Education for Culturally Different Groups, including Alaskan Eskimos, Indians, and Negroes in the region's urban areas, work focuses on design of programs to provide counseling, instructional systems, model community schools, and beginning reading materials. The third program deals with improving instruction in small isolated schools, and is producing multi-media self-instructional systems, computer-assisted instruction and guidance-counseling packages. In addition, two programs are being planned; first, installation of a major computer facility to serve the region's schools as a tool for instruction, instructional management and administrative management, second, a program to facilitate school board and administrator participation in planning activities of urban development agencies in the strip from Bellingham, Washington, to Eugene, Oregon.

392. EP000821

$6,838,003

CENTRAL MIDWESTERN REGIONAL EDUCATIONAL LABORATORY

Investigator—Robinson, Wade M.

Institution—Central Midwestern Regional Educational Lab., St. Ann, Mo.

Bureau Number—BR-6-2875 Proposal Date—66

Responsible Br.—Laboratory Branch, Del.

Missouri Congressional District Number 2

Contract—OEC-3-7-062875-3056

FY6—$695,083; FY67—$805,640; FY68—$1,370,143; FY69—$1,746,125; FY70—$2,221,013

Descriptors—Classroom Research, Curriculum Development, Curriculum Research, Educational Research, Information Dissemination, Language Research, Personnel, Private Schools, Public Schools, Reading Research, Regional Laboratories, Researchers, Systems Analysis

Start date 16 Jun 66 End date 30 Nov 70

CEMREL has focused on two program areas—(1) curricula and instructional systems, and (2) The development of educational information systems. In curricula CEMREL is (a) developing a K–12 mathematics curriculum which will individualize mathematics instruction, and (b) developing curriculum materials and guidelines for the development of a K–12 curriculum in aesthetic education. In instructional systems CEMREL is developing specific teaching techniques for children with learning difficulties through (a) a preschool and elementary program using social exchange systems, and (b) a junior high program using individualization, multisensory instructional aids, and tutorial experience with primary children. In the area of educational information systems CEMREL is developing an educational computer utility to help schools of the region improve the effectiveness of instruction, guidance, and school administration through (a) urban and regional planning, (b) school data systems designs, (c) student-machine interface studies, and (d) classification, indexing, and evaluation of educational materials. Supporting projects in which CEMREL is engaged are (1) a three-year research and assessment study of the impact of educational laboratory theatres in Providence, R.I., New Orleans, and Los Angeles, with development of curriculum packages, (2) the study of a diffusion model for spreading exemplary social studies curricula into schools, (3) a longitudinal study from birth to 7 years of 1000 children to determine the effects of environmental adversity on learning, (4) a study of teacher plans and classroom interaction, (5) A continuous regional survey of educational uses of computers and (6) a continuous regional directory of innovative practices.

393. EP000823

$4,614,101

APPALACHIA EDUCATIONAL LABORATORY

Investigator—Carmichael, B.

Institution—Appalachia Educational Lab., Charleston, W. Va.

Bureau Number—BR–6–2909 Proposal Date—66

Responsible Br.—Laboratory Branch, Del.

West Virginia Congressional District Number 3

Contract—OEC–3–7–062909–3070

FY66—$378,600; FY67—$1,200,00; FY68—$993,795; FY69—$915,851; FY70—$1,125,855

Descriptors—Educational Needs, Educational Programs, Educational Research, Information Dissemination, Instructional Innovation, Laboratories, Regional Cooperation, Regional Laboratories, Regional Programs, Research Projects, Resource Centers

Start date 16 Jun 66 End date 30 Nov 70

The mission of the AEL is to institutionalize improved educational practices in Appalachia through extensive use of instructional communications media and mobile facilities within educational cooperatives. Cooperatives will involve local school systems, State departments of education, and colleges and universities. During the current year AEL is developing a model of the educational cooperative. The model will specify the structure and organization of the cooperative (i.e., management and operations, media, computer technology, mobile and central facilities, personnel selection and training) and certain types of content for the cooperative (i.e., early childhood education, vocational guidance, adapted courses, Appalachia-focused language, and in-service education). Existing research and experience and pilot tryouts in "cooperative field activities" in six Appalachian States are contributing to the design of the model cooperation. Currently, assessment of related practices and experience is nearing completion and four field activities are underway. It is expected that the first full educational cooperatives will be initiated in 1969.

394. EP011113

$163,000

A COMPETENCY BASED, FIELD CENTRAL SYSTEMS APPROACH TO ELEMENTARY TEACHER EDUCATION

Investigator—Schalock, H. Del

Northwest Regional Educational Lab., Portland, Ore.

Bureau Number—BR–8–9022 Proposal date 28 Dec 67

Instructional Materials and Practices Branch, DESR

Oregon Congressional District No. 3

Contract—OEC–0–8–089022–3318

FY68—$163,000

Descriptors—Teacher Education, Teacher Education Curriculum, Computer-Assisted Instruction, Computer Oriented Programs, Elementary School Teachers, Teacher Qualifications, Teacher Evaluation, Individualized Curriculum, Instructional Technology, Instructional Innovation, The Comfield Program, Chapman College Orange California, Portland Oregon

Start date 01 Mar 68 End date 31 Oct 68

The Northwest Regional Educational Laboratory cooperatively with teacher training agencies and educational researchers will develop plans and specifications for a competency-based, field-centered, model elementary teacher education program (the Comfield Program). The consortium will include representatives from private industry, and the Department of Instructional Systems Technology at Chapman College, Orange, California. The professional education curriculum for elementary teachers will be defined in behavioral terms. Instructional systems will be designed to develop the required teacher competencies, and provisions will be made for student teachers to demonstrate their competencies under supervised laboratory, clinical, and internship conditions. A computer-based instructional management system will provide for individualized instruction. Procedures for evaluating competencies and prescribing developmental experiences will be specified. Additionally, the model system will include specifications for support systems, administrative systems, and cost-effectiveness procedures.

395.

UPPER MIDWEST REGIONAL EDUCATIONAL LABORATORY

Project—Developing Behaviorally Engineered Educational Environments

This educational system is made up of several interlocking and interdependent subsystems which include all of the many functions necessary for operating a school. Among the major functions han-

dled in these subsystems are: maintenance of the physical environment where children learn; collection and organization of the curriculum materials prescribed for each child each day; measurement and precise recording of what the student is doing; training of teachers, administrators, and other personnel in the system; and the organization of the support functions—such as bookkeeping—to keep the system operating smoothly.

On the base provided by 28 demonstration classrooms, used as training and research sites, the laboratory is developing a multifaceted behaviorally engineered and environmentally oriented educational system. A finished system, suitable for adoption by school districts across the country, will have: (1) specific behavioral objectives based on useful evaluative criteria for all components of the instructional system; (2) educational pre- and in-service training in management techniques and pupil data-based instructional programs; (3) a curriculum objectives bank available to all participants; and (4) an educational resources center, mechanical and/or automated computer-based instructional management, with accompanying reorganized staffing of professional educators, etc.

396.

NORTHWEST REGIONAL EDUCATIONAL LABORATORY

Principal Investigator—Duanne Richardson

Project—Relevant Educational Applications of Computer Technology (Program REACT)

To prepare school administrators, teachers, and students for the vastly increased use of computers, the Laboratory is developing instructional units which emphasize demonstrations of existing computer applications. These provide "hands on" use of a computer.

The instructional units are organized into several courses. Course I is designed for both administrators and teachers. The units provide a general introduction to computers and survey the use of computers in education. Course II, for administrators, thoroughly examines the concept of data management systems and management applications. Course III is designed for administrators who wish to implement computer based applications. It delves deeply into problems of hardware options, software needs, costs, personnel, and computer power options.

Course II for teachers is composed of application units from five subject areas: mathematics, science, business education, English, and social studies. At the completion of Course II, teachers have developed skills for selecting and writing similar units in their own subjects. Course III for teachers is intended to refine those skills.

Instructional units for use by students are in four areas: mathematics, science, business education, and social studies.

397.

REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA

Principal Investigator—Bard F. White

Project—Administrative and Organizational Systems: Project on Data Management Systems Development Handbook

This project will entail the design of a generalized specification handbook which will enable a computer-oriented administrator to evaluate software, and develop specific objectives for the acquisition of a data management system.

398.

REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA

Principal Investigator—Thomas Briley

Project—Administrative and Organizational System: Statistical Interface System Project

A user's guide which will enable administrators who lack computer programing skills to employ appropriate computer statistical analysis methods in institutional research and to interpret the results, will be developed.

399.

REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA

Principal Investigator—James Dobbins

Project—Administrative and Organizational Systems:

AUTOCODER Information Retrieval Project

A set of computer programs will be produced, with a training manual and practice exercises. The system can be used on any small-scale computing equipment (a minimum of 8K core).

The system creates and updates a magnetic disk data file and enables college administrators to retrieve reports specifying record selection criteria, the sequence of records, and the content and format of desired reports.

400.

REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA

Principal Investigator—M. L. Abbott

Project—Administrative and Organizational Systems:
Project on the 1130 Admissions
Information System

A set of computer programs will be produced, using the FORTRAN Information Retrieval System, that allow creation and updating of an admissions data file, prediction of grade-point averages, preselection of applicants into groups and comparison of groups, and the reporting of information based on criteria selected by the user.

401.
REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA
Principal Investigator—M. L. Abbott
Project—Administrative and Organizational Systems:
FORTRAN Information Retrieval Project

A set of computer programs will be produced, written in the universal programming language, FORTRAN, with a training manual and practice exercises. The system can be used on any small-scale computing equipment (a minimum of 8K core), that supports FORTRAN IV.

The system creates and updates a magnetic disk data file and enables college administrators to retrieve reports specifying record selection criteria, the sequence of records, and the content and format of desired reports.

402.
REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA
Principal Investigator—Bard F. White
Project—Administrative and Organizational Systems:
University Admissions Information
System (UAIS) Project

This package consists of specifications, an application manual, computer programs, simulation exercises for administrators, and a demonstration data base. The system creates and maintains computer-based applicants' data files, prepares individual applicant profiles and listings, prints statistical profiles and reports for selected categories of applicants, preselects applications into groups based on grade-point average, accounts for admissions decisions and financial aid awards, prints address labels and decision letters, and provides feedback to secondary schools on admissions decisions.

403.
REGIONAL EDUCATION LABORATORY FOR THE CAROLINAS AND VIRGINIA
Principal Investigator—Bard F. White
Project—Administrative and Organizational Systems:
Financial Aid Information System
(FAIS) Project

This package consists of specifications, computer programs, simulation practice exercises for administrators, and a demonstration data base. Financial aid officers using this system will be able to create and update computer-based data files for student aid applicants, student aid fund accounts, and student loan accounts; generate individual reports and listings of financial aid applicants; send notification letters to financial aid recipients and students with outstanding loans; prepare student aid fund and loan accounting ledgers and auditing reports; and assemble data for external reporting.

Research and Development Centers

The U.S. Office of Education, through its National Center for Educational Research and Development, now supports eight Research and Development Centers. The overall purposes of these centers is to unite resources and talents from many disciplines to discover the knowledge needed for educational improvement. The eight university based centers supported by funds from the Cooperative Research Act passed by Congress in 1954, are studying the nature of human development and learning in order to develop a rational basis for educational practices and to solve pressing educational problems.

The names and addresses of the Research and Development Centers are:

Learning Research and Development Center
208 M.I. Building
University of Pittsburgh
Pittsburgh, Pa. 15213

Center for the Advanced Study of Educational Administration
147B Hendricks Hall
University of Oregon
Eugene, Ore. 97403

Wisconsin Center for Research and Development for Cognitive Learning
The University of Wisconsin
1404 Regent Street
Madison, Wis. 53705

Research and Development Center in Teacher Education
303 Sutton Hall
University of Texas
Austin, Tex. 78712

Stanford Center for Research and Development in Teaching
Stanford University
1770 Welch Road
Palo Alto, Calif. 94304

Center for Research and Development in Higher Education
University of California
4606 Tolman Hall
Berkeley, Calif. 94720

Center for the Study of the Evaluation of Instructional Programs
145 Moore Hall
405 Hilgard Avenue
Los Angeles, Calif. 90024

Center for the Study of Social Organization of Schools
The Johns Hopkins University
3505 North Charles Street
Baltimore, Md. 21218

FY66	FY67	FY68	FY69	FY70	FY71	Total
$8,728,000[2]	$8,032,000	$10,828,000	$8,140,000	$7,270,000	$10,026,000	$53,024,000[1]

[1] This is the basic support provided by USOE to the Centers.
[2] Includes $999,000 for FY64 and $2,169,000 for FY65.

Research and Development Centers—Projects

404. EP011753
$5,628,719
EDUCATIONAL RESEARCH FACILITY CONSTRUCTION AT THE UNIVERSITY OF PITTSBURGH
Investigator—Posvar, Wesley W; and others
Pittsburgh Univ., Pa.
Bureau Number—BR-8-0647 Proposal Date—15 Mar 68
Research and Development Centers Branch, DEL.
Pennsylvania Congressional District Number 14.
Grant—OEG-0-9-480647-4594
FY69—$5,628,719
Descriptors—Computer Based Laboratories, Construction Programs, Educational Facilities, Educational Research, Research and Development Centers
Start Date 21 Jun 69 End Date 31 Dec 72

The function of the Learning Research and Development Center is to study the learning process with particular attention to the nature of the educational environment required to maximize the potential of the individual learner. The Center has initiated, during its first four years of existence, a number of research and development activities which have produced significant research findings and promising new educational programs. The Center's programs span a continuum of activities from basic research through field development and encompass basic psychological studies of learning, computer-assisted instruction, computerized classroom management, measurement and evaluation studies, and the development of prototype-experimental instructional programs. The new facility is proposed to provide appropriate quarters specifically designed to meet the specialized needs of cility will represent the emerging significance of the contributions of scientists and scholars to education. A highly flexible building of approximately 135,000 gross square feet is proposed. It would include such facilities as computer-monitored learning laboratories, experimental and demonstration classroom areas, and curriculum material and equipment production areas. The facility is designed as a focal point in the University of Pittsburgh where faculty and students from a variety of disciplines, from this University and other institutions, can work together on significant problems in education.

405. EP011949
NONCURRICULAR EFFECTS OF EDUCATIONAL TECHNOLOGY — THE COMPUTER AS A SOCIALIZING AGENT, STANFORD CENTER FOR RESEARCH AND DEVELOPMENT IN TEACHING, PROJECT 0602
Investigator—Hess, Robert D.
Stanford Univ., Calif. Stanford Center for Research and Development in Teaching.
Bureau Number—BR-5-0252-06-02 Proposal Date—1 Jun 69
Research and Development Centers Branch, DEL.
California Congressional District Number 10
Contract—OEC-6-10-078
Descriptors—Child Development, Computer-Assisted Instruction, Computer Science, Educational Technology, Interaction, Psychological Patterns, Research and Development Centers, Teacher Education, Teacher Role, Teaching Machines, Teaching Techniques
Start Date—1 Sep 65 End Date 31 Jul 71

This is an ongoing subproject of the Stanford Center for Research and Development in Teaching

these research and development activities. This fa- (Project BR–5–0252, EP 000 755). The purpose of this effort is to conduct studies aimed at understanding the nonintellective effects of educational technology upon children, particularly upon their attitudes and orientation toward machines as sources of information and "authoritative" answers. The importance of the research to the field of education and to research in teaching is in the information that the study might obtain about the effects variations in teaching techniques have upon a cluster of attitudes and beliefs which play a significant role in an individual's modes of processing information, especially in those responses which regulate the acceptance or rejection of information offered by competing media in the environment. In addition, knowledge of the effectiveness of the machine in teaching children from different backgrounds and with different preferences in intake modalities would be useful. Perhaps most significant is the information the study might provide with respect to the role of the human teacher in a classroom populated with non-human teachers and the implications of this information for long-term planning in programs of teacher training.

406. EP011960

RESEARCH IN THE METHODOLOGY OF LONGITUDINAL STUDIES. CHICAGO EARLY EDUCATION RESEARCH CENTER, PROGRAM G-G (IN PARTICIPATION WITH THE NATIONAL COORDINATION CENTER FOR EARLY CHILDHOOD EDUCATION)

Investigator—Wiley, David

Chicago Univ., Ill. Chicago Early Education Research Center.

Cooperating Institutions—Illinois Univ., Urbana. National Laboratory on Early Childhood Education.

Bureau Number—BR–7–0706–G–G Proposal Date —1 Jun 69

Research and Development Centers Branch, DEL.

Illinois Congressional District Number 2

Contract—OEC–3–7–070706–3118

Descriptors—Computer Programs, Concept Formation, Data Collection, Developmental Programs, Longitudinal Studies, Mathematical Models, Methods Research, Preschool Children, Research and Development Centers, Statistical Analysis

Start Date 1 Mar 67 End Date 31 May 70

This is a program of the Chicago Early Education Research Center, in support of the National Coordination Center for Early Childhood Education (Project BR–7–0706, EP000971). The primary objective of the program is to develop new methodological procedures for longitudinal research investigations of young children, and specifically to develop new mathematical models for dealing with longitudinal data and to create some statistical tools for a particular study of the child's development of conceptual categories. As much of the work in this problem area is mathematical and statistical, it also requires the development of computer programs with illustrative analyses of existing data. Some of it, however, will require the collection of new data and the application to it of new methodological techniques. Preschool and primary grade children constitute the sample population in those phases of research in this program which relate to the generation of new data. The following major vehicles of dissemination have been projected: (1) an AERA paper concept development in children over time, and (2) a Psychometric Society paper. Moreover, the development of new methods of data analysis will make direct contributions to model development in other program activities.

407. EP011983

RESEARCH AND CONSULTING DIVISIONS. RESEARCH AND DEVELOPMENT CENTER FOR TEACHER EDUCATION, PROGRAM 03

Investigator—Peck, Robert F.

Texas Univ., Austin. Research and Development Center for Teacher Education.

Bureau Number—BR–5–0249–03 Proposal Date —1 Jun 69

Research and Development Centers Branch, DEL.

Texas Congressional District Number 10

Contract—OEC–6–10–108

Descriptors—Behavioral Objectives, Computer Assisted Instruction, Instructional Design, Public Schools, Research and Development Centers, Student Behavior, Teacher Education, Teaching Models

Start Date 1 Sep 65 End Date 30 Jun 70

This is an ongoing program of the Research and Development Center for Teacher Education, University of Texas (Project BR–5–0249, EP010343). The program is composed of three Research and Consulting Divisions. The Personalized Research Division examines module-building activities for teacher education programs in terms of individual student behavior and personalized gain. The Assessment Division develops procedures for determining the effectiveness of the modules. The Learning Technology Division assists in carrying through each step of instructional design model in each module and makes available the facilities of a computer-assisted instruction laboratory.

408. EP011997

THE COMPUTER AS A RESPONSIVE EDUCATIONAL ENVIRONMENT. CENTER FOR THE STUDY OF SOCIAL ORGANIZATION OF SCHOOLS, PROJECT 1207.

Investigator—Karweit, Nancy

Johns Hopkins Univ., Baltimore, Md. Center for the Study of Social Organization of Schools.

Bureau Number—BR–6–1610–12–07 Proposal date —1 June 69

Research and Development Centers Branch, DEL.

Maryland Congressional District Number 4.

Grant—OEG–2–7–061610–0207

Descriptors—Computers, Educational Environment, Educational Technology, Learning Activities, Research and Development Centers

Start Date 1 Sep 66 End Date 31 Aug 70

This is an independent project of the Center for the Study of Social Organization of Schools, Johns Hopkins University (Project BR–6–1610, EP010340). One objective is to explore the ways in which computers may be used to provide a flexibly responsive learning environment. This involves a thorough examination of the various possible means by which computers may be used as a learning tool. Another main objective is to draw up a set of specifications for the appropriate computer software and hardware for use in such a project. The specific activities of the project relate to the achievement of the project objectives as follows: (1) Writing computer programs for on-line devices to provide information and experience helpful in formulating the specification list for the software and hardware. (2) Writing and testing these programs to indicate the feasibility of conceiving of the computer as a flexibly responsive learning tool.

409. EP012002

COMPUTER-ASSISTED INSTRUCTION PROGRAM. LEARNING RESEARCH AND DEVELOPMENT CENTER, PROGRAM 03

Investigator—Glaser, Robert

Pittsburgh Univ., Pa. Learning Research and Development Center.

Bureau Number—BR–5–0253–03 Proposal date—1 Jun 69

Research and Development Centers Branch, DEL.

Pennsylvania Congressional District Number 14.

Contract—OEC–4–10–158

Descriptors—Computer-Assisted Instruction, Display Systems, Early Childhood Education, Experimental Curriculum, Individualized Instruction, Number Concepts, Pilot Projects, Programming Languages, Research and Development Centers, Spelling Instruction, Cathode Ray Tube

Start date 1 Apr 64 End date 31 Jul 70

This is a program of the Learning Research and Development Center of the University of Pittsburgh (Project BR–5–0253, EP000781). The long-run objective of this program is an operational computer installation serving elementary school through college levels, to be employed for actual instruction, and for the study and continuous improvement of subject matter learning, according to the specifications derived from the requirements of individualized education. Goals of specific projects in the program are the development of experimental curricula for computer-assisted instruction (CAI), experimentation with appropriate student consoles and computer languages necessary for an operational CAI System, and installation of an operational CAI System in the Center associated schools where individualized instruction techniques have been introduced. The Curriculum Design Project develops CAI courses which are used as vehicles for experimental study. Two courses have been tried out during the past year. One course, consisting of a typical school year of fourth grade spelling, makes extensive provision for adapting to individual performance and can be operated by the student working at a teletype or at a keyboard and a cathode-ray tube. A second course, designed to test the feasibility of CAI for very young children, teaches elementary number concepts to kindergarten children, using a specially designed touch-sensitive display which students can touch with their fingers. Other projects within this program are investigating computer languages in relation to the demands of psychological experimentation and of CAI.

410. EP012004

INDIVIDUALIZATION OF EDUCATION PROGRAM. LEARNING RESEARCH AND DEVELOPMENT CENTER, PROGRAM 05.

Investigator—Bolvin, John

Pittsburgh Univ., Pa. Learning Research and Development Center.

Bureau Number—BR–5–0253–05 Proposal date—1 Jun 69

Research and Development Centers Branch, DEL.

Pennsylvania Congressional District Number 14.

Contract—OEC–4–10–158

Descriptors—Classroom Techniques, Continuous Progress Plan, Curriculum Development, Elementary School Students, Experimental Curriculum, Individualized Instruction, Individualized Programs, Research and Development Centers, Systems Development, Teaching Methods, Urban Teaching, Individually Prescribed Instruction, IPI

Start date 1 Apr 64 End date 31 Jul 70

This is a program of the Learning Research and Development Center of the University of Pittsburgh (Project BR–5–0253, EP000781). The long-run objective of the program is a prototype system of education which, by adopting to relevant individual differences, optimizes each students' progress in school by permitting mastery of subject matter in the most efficient manner for each student. The individualization that is being provided for includes individualized lesson plans, individualization of the materials and instructional techniques provided, and achievement of a required level of subject-matter mastery for each student. Within this program, the Individually Prescribed Instruction Project (IPI) is focused on the development of a workable model for the individualization of instruction at the elementary level. Components of the model include curriculum design, testing, materials and resources for instruction, prescription writing and teacher training, classroom management and information feedback. The Primary Education Project, a new experimental school project, has as its aim the development of individualized curriculum and a school organization that will serve children in a continuous program beginning at age 3 and running through the primary grades. The project is undertaking the design of a total school environment and will concern itself with the practical problems of running a school and with maximizing the school's effectiveness. Systematic curriculum design and classroom management procedures are among its activities. The Computer Management and Information System Project is designed to increase the effectiveness of the model for individualizing instruction and to optimize the role of the teacher. Instructional materials have been developed in elementary mathematics, reading, science, handwriting and spelling.

411. EP012061

PROTOTYPIC INSTRUCTIONAL SYSTEMS: ELEMENTARY MATHEMATICS

Wisconsin Research and Development Center for Cognitive Learning, Project 0201.

Investigator—Van Engen, Henry; and others

Bureau Number—BR–5–0216–02–01 Proposal date 1 Jun 69

Division of Educational Laboratories, B.R. Research and Development Centers Branch, DEL.

Wisconsin Congressional District Number 2

Contract—OEC–5–10–154

Descriptors—Classroom Techniques, Concept Formation, Elementary School Mathematics, Inservice Programs, Instructional Programs, Instructional Television, Mathematical Concepts, Mathematics Instruction, Modern Mathematics, Research and Development Centers, Systems Approach

Start date 1 Sep 64 End date 31 Jul 71

This project is part of the ongoing program "Processes and Programs of Instruction" of the Wisconsin Research and Development Center for Cognitive Learning, University of Wisconsin at Madison (Project BR–5–0216, EP000754). The project is divided into three components. The first component, "Patterns in Arithmetic" will be completed in FY 69. Teacher manuals, student workbooks, and 15-minute videotaped instructional materials for grades 1–8 will be developed. These will provide a complete program of instruction for pupils and also an inservice program in modern mathematics for elementary teachers. The second component involves development-based research in school settings: (1) to produce materials and assessment procedures for a program of Individually Guided Mathematics for grades K–6; (2) to produce a related outline of concepts and cognitive skills; (3) to identify cognitive processes involved in learning mathematics. The third component involves the development of a computer management system in elementary mathematics.

412.

R&D CENTER FOR TEACHER EDUCATION (AUSTIN)

Principal Investigator—Shirley L. Menaker; Frances F. Fuller

Project—Assessment Instrument Development

During FY'71 this project will have the following objectives: (1) continued development and validation of a screening manual for the test of Directed Imagination developed earlier by the Center; (2) continued development and validation of a screening manual for the One-Word Sentence Completion instrument also developed earlier by the Center; (3) development of an Exit Interview Questionnaire; (4) development of a Computer Scoring System for the One-Word Sentence Completion instrument; (5) development of a Brief Record Form for summarizing counselor-client contacts; (6) development of a quick-scoring instrument for identifying teachers' concerns; and (7) development of evaluation forms for use in field tests of assessment instruments.

413.

CENTER FOR THE ADVANCED STUDY OF EDUCATIONAL ADMINISTRATION—OREGON

Principal Investigator—James McNamara; Brent M. Rutherford

Project—Advanced Educational Planning

Each project with Program 40 (Procedures for System Planning) will be designed to develop a product which includes a clear specification of the educational problem being attacked, instructions for formulating the problem in a solvable format, a description of the technique used to solve the problem, instructions regarding the use of the technique for solving other similar problems, and where appropriate, the computer software to support the technique. Also, in each case the program personnel will work to help put the final product into an instructional format.

The initial phase of this project is designed to explore carefully the successful application of mathematical programing to planning problems, and to produce generalized models for utilizing this technique in a wide variety of situations.

The specific objectives for FY 71 are to: (1) synthesize the information necessary for teaching mathematical programing as a technique for generating data needed in planning the solution to educational problems; (2) develop a prototype set of instructional materials for teaching school personnel to understand mathematical programing and its application; (3) identify the one significant generic-type educational problem which best "fits" the selection criteria of "feasibility" and "impact" as defined by the researchers; and (4) develop a general model for applying the mathematical programing technique in the solution of the generic-type identified.

414.

WISCONSIN RESEARCH & DEVELOPMENT CENTER FOR COGNITIVE LEARNING

Principal Investigator—Herbert J. Klausmeier

Project—Individually Guided Education

The major components of the design of Individually Guided Education are as follows:

1. A well-defined organization for instruction and a related administrative organization at the building and central office levels to provide for educational and instructional decisionmaking.
2. Sets of curriculum materials and instructional procedures designed to provide for differences among students. Related to these are inservice programs and materials for teachers.
3. A system of instructional programing, including computer management of instruction.
4. A design for measurement and evaluation includes preassessment and criterion referenced tests in each curriculum area under development and also evaluation of the IGE design and its components.
5. A program of home-school communication.
6. Facilitative environments in school buildings, school system central offices, State education agencies, and teacher education institutions are required by the IGE design.
7. Continuing research and development on learning and instruction generates new knowledge that will lead to improved second generation components or replacements.

415.

LEARNING RESEARCH AND DEVELOPMENT CENTER (PITTSBURGH)

Principal Investigator—Richard Ferguson

Project—Computer Applications

Project activities include the design of an on-line system for data entry and retrieval to assist teachers in an individualized school setting in planning instructional activities for students, the construction of computer-assisted tests, assistance in the development of a computer-managed information system to provide teachers with immediate progress and background information for each student, and the application of a program for self-selection of instruction to selected units in individualized curriculums.

416.

LEARNING RESEARCH AND DEVELOPMENT CENTER (PITTSBURGH)

Principal Investigator—Karen Block; Richard Roman

Project—Computer-Assisted Instruction

This project designs instructional programs which serve two functions: to provide instruction relevant to school concepts and skills, and to implement research designs for the purpose of investigating psychological variables relevant to learning and instruction. The major developmental efforts focus on LRDC curriculums in elementary school spelling and mathematics, and on selected topics in the LRDC early learning curriculum. In this context, several major instructional problems are being investigated, including the way in which instruction can be optimized by adapting to the

learning histories of the individual student. This involves the design of optimal conditions for learning through the assessment of response parameters as the basis for manipulation of feedback parameters, stimulus presentation schemes, and other instructional conditions.

The second major problem area defined for study concerns the development and investigation of computer-assisted instruction as it provides instructional features judged to be optimal for a lesson and not possible with conventional instruction. The project explores this area through investigations of the adaptation of selected subject matters to various terminal devices and through investigations of the design of instructional strategies which allow the student a high degree of subject-matter manipulation.

417.

RESEARCH FOR BETTER SCHOOLS, INC.

Principal Investigator—Research for Better Schools, Inc.

Project—Computer-Assisted Instruction.

Computer-Assisted Instruction is designed to utilize the computer in the presentation of individualized instruction for learners.

The basic function of the CAI project is to convert IPI mathematics materials from booklet form to a format which permits their presentation to the student via a computer-assisted instruction system. This involves two basic operations—first, the curriculum rewriting task; and second, an encoding task to get the materials ready for the computer.

CAI-IPI mathematics is presented to students at a specially designed computer terminal and has both keyboard and light-pen response capabilities. Records of students' progress are stored in the computer and may be printed out upon request.

418.

STANFORD CENTER FOR RESEARCH & DEVELOPMENT IN TEACHING

Principal Investigator—R. D. Hess

Project—Student Motivation and Engagement in Dyadic Learning Situations

The importance of computer-assisted instruction (CAI) to education in general and to teaching in particular lies in the effects variations in teaching techniques have on a cluster of attitudes and beliefs that play a significant role in a student's modes of processing information. Knowledge of the effectiveness of the machine in teaching children from different backgrounds is greatly needed.

This project will proceed with further analysis of individual student motivation in both computer (CAI)-learner and human tutor-learner situations and will attempt to identify specific factors which influence student engagement in dyadic learning situations. Currently, a study is being conducted on the influence of CAI on a student's self-concept, locus of control, and level of aspiration.

419.

WISCONSIN RESEARCH & DEVELOPMENT CENTER FOR COGNITIVE LEARNING

Principal Investigator—Wayne Otto

Project—The Wisconsin Design for Reading Skill Development

This program is organized into six skill areas: Word Attack, Comprehension, Study Skills, Self-Directed Reading, Interpretive Skills, and Creative Skills. The Word Attack Skills Program consists of the following major elements, all under development copyright: Rationale and Guidelines (132-page overview of the design); Teacher's Planning Guide—Word Attack; Machine-Scorable Test Booklets—Word Attack; Test Administrator Manuals—Word Attack; Teacher's Resource File—Word Attack; Student Profile Cards—Word Attack.

The Word Attack materials underwent formative evaluation during 1968-70 and resulted in a reduction in pupil skill deficiencies and an increase in level of reading achievement. The program is being field tested in cooperation with the Southwest Regional Educational Laboratory in 50 elementary schools in five States in the 1970-71 school year. The Study Skills and Comprehension areas are projected for similar field testing in the 1971-72 school year.

National Computer Systems, Minneapolis, is producing and distributing the materials during field testing and also is scoring the tests.

420.

CENTER FOR VOCATIONAL AND TECHNICAL EDUCATION (OHIO STATE)

Principal Investigator—Joel H. Magisos

Project—Regional Workshops for Development of State Vocational-Technical Education Information Dissemination Systems

Concurrent development of a national information system for education (ERIC), an ERIC Clearinghouse on Vocational and Technical Education (VT-ERIC), and the research coordination units (RCU's) provided institutional settings for a linked, multi-level information system network.

The objective of this project is adoption by RCU's of procedures and techniques for effective

dissemination of research and related information which may be utilized for the improvement of vocational-technical education.

Two four-day workshops will be conducted for RCU personnel. Examples of workshop activities include work on use of advisory committees, negotiation of user requests, design of search strategies, utilization of QUERY (i.e., computer software package), and management of document and microfiche collections.

ERIC

Educational Resources Information Center

The Educational Resources Information Center (ERIC) is a nationwide, decentralized information system designed to help advance research and development on educational problems and processes and to accelerate widespread adoption of research based educational programs.

The ERIC system is composed of 20 clearinghouses, each focusing on a specific topic or field. Clearinghouses are located at institutions of higher learning or within professional organizations. Each clearinghouse is responsible for collecting and reviewing documents within its scope of interest. These documents are then forwarded to the LEASCO corporation for publication in *Research in Education* (RIE). The professional staff of each clearinghouse directs the preparation of selective bibliographies, prepares reviews of research and interpretative summaries of the literature, and performs the related tasks. Major bibliographies and review papers developed by the clearinghouses are announced through RIE and are made available through the Document Reproduction Service operated by LIPCO (Leasco Information Products Company). Reports are put on microfilm and are available for purchase in either microfiche or hard copy form. Through computer usage, ERIC provides access to thousands of education reports made available monthly by organizations all over the country. ERIC also publishes a monthly guide titled CURRENT INDEX TO JOURNALS IN EDUCATION.

ERIC is a computer-based information retrieval and dissemination system. Most searching of the magnetic tapes which contain the publication information is done through an information retrieval program called QUERY. It is a proprietary system being made available through USOE on a limited basis to State and local educational agencies. At present, there are about 75 users.

At the present, experimentation is proceeding with an on-line, remote access search system. The terminal, located in USOE, is accessing a computer located in Palo Alto, California.

List of Eric Clearinghouses

ERIC Clearinghouse on Languages and Linguistics

Modern Language Association of America (MLA)
62 Fifth Avenue
New York, New York 10011

ERIC Clearinghouse on *Higher Education*
George Washington University
1 Dupont Circle, N. W.
Suite 630
Washington, D. C. 20036

ERIC Clearinghouse for *Junior Colleges*
Room 96, Powell Library
University of California
405 Hilgard Avenue
Los Angeles, California 90024

ERIC Clearinghouse on *Library and Information Sciences*
American Society for Information Science
1140 Connecticut Avenue
Suite 804
Washington, D. C. 20036

ERIC Clearinghouse on *Early Childhood Education*
College of Education
University of Illinois
805 West Pennsylvania Avenue
Urbana, Illinois 61801

ERIC Clearinghouse on *Vocational and Technical Education*
Ohio State University
1900 Kenny Road
Columbus, Ohio 43210

ERIC Clearinghouse on *Rural Education and Small Schools*
Box 3-AP
New Mexico State University
Las Cruces, New Mexico 88001

ERIC Clearinghouse on *Science and Mathematics Education*
Ohio State University
1460 West Lane Avenue
Columbus, Ohio 43221

ERIC Clearinghouse for *Social Science Education*
Social Science Education Consortium, Inc.
855 Broadway
Boulder, Colorado 80302

ERIC Clearinghouse on Reading & Communication Skills
1111 Kenyon Road
Urbana, Illinois 61801

ERIC Clearinghouse on *Adult Education*
Syracuse University
107 Roney Lane
Syracuse, New York 13210

ERIC Clearinghouse on Teacher Education
1 Dupont Circle, Suite 616
Washington, D.C. 20036

ERIC Clearinghouse on *Counseling and Personnel Services*
Information Center, Room 3056, Quimet Bldg.
611 Church Street, 3rd floor
Ann Arbor, Michigan 48104

ERIC Clearinghouse on *Educational Management*
320 Hendricks Hall
University of Oregon
Eugene, Oregon 97403

ERIC Clearinghouse on *Exceptional Children*
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421. EP010005
$14,492
SUB-REGIONAL SPEECH VARIATIONS IN VOCABULARY, GRAMMAR, AND PRONUNCIATION
Investigator—Wood, Gordon R.
Southern Illinois Univ., Carbondale
Bureau Number—BR-5-0909 Proposal date—15 Oct 65
Basic Studies Branch, DHER
Illinois Congressional District No. 21
Contract—OEC-3-6-050909-0972
FY66—$14,492
Descriptors—Computer Programs, Grammar, Pronunciation, Speech Habits, Vocabulary, Carbondale, Comparative Analysis, Data Processing, English, Illinois, Language Patterns, Linguistics, Oral English, Phonetics, Regional Programs.
Start date 03 May 66 End date 30 Sep 67

A computer analysis will be made of the structures of vocabulary, syntax, and pronunciation in current American English. Such an analysis involves identifying the various structural patterns, relating them to known bodies as evidence about American spoken English, and interpreting the results in terms of continuity and change. As the evidence permits, interpretations will also be made of the apparent influences of age, sex, and education on these matters. Typescripts will be prepared and coded from work copies of master tapes. Two computer runs, pilot and production, will be made involving card punching, machine processing, and printouts. These printouts will be made up of the following elements—(1) Vocabulary, (2) Grammar and Syntax, (3) Phonetic-Phonemic materials, and (4) Summaries of two or three of the first three elements.

422. EP010536
$23,303
THE CONSTRUCTION OF A COMPUTER PROGRAM FOR THE CLASSIFICATION OF HEBREW WORD STEMS
Investigator—Katsh, Abraham I.
New York Univ., N.Y.
Bureau Number—BR-6-1263 Proposal date—27 Aug 65
Instructional Materials and Practices Branch, DHER
New York Congressional District No. 17
Contract—OEC-1-7-061263-1656
FY67—$23,303
Descriptors—Algorithms, Computer Programs, Hebrew, Language Instruction, Computers, Concordances, Indexes (Locaters), Indexing, Instructional Innovation
Start date 01 Jan 67 End date 31 Dec 67

An algorithm for mechanical recognition of Hebrew roots by an electronic computer will be devised and used for library cataloging and for the creation of indexes and concordance of texts in the Hebrew language. In addition, an examination is planned of the theory of the algorithm in terms of a new teaching method for the Hebrew language. The investigation will begin by a thorough study of Hebrew linguistic structure to establish rules for distinguishing root consonants from prefix and suffix consonants. The algorithm will be programed to encompass the rules uncovered in this study, and the workability of these rules will be tested in small runs on short selections from literature of all ages.

423. EP010698
$33,459
STUDY OF SPOKEN RUSSIAN (SOVIET USAGE)—SYNTAX
Investigator—Vakar, N. P.
Ohio State Univ., Columbus
Bureau Number—BR-6-2046 Proposal date—67
Instructional Materials and Practices Branch, DHER
Ohio Congressional District No. 15
Contract—OEC-3-6-062046-1230
FY66—$33,459
Descriptors—Computational Linguistics, Language Patterns, Russian, Structural Analysis, Syntax, Columbus, Oral Communication, Speech
Start date 01 Jun 66 End date 30 Nov 67

In an effort to provide the Russian language teacher and student with a count and analysis of

common syntactic structures. A sentence study of modern spoken Russian will be made. The sentence study will include syntactic structures most commonly used, arranged by the frequency of their occurrence, and lists and tables providing information on length, type, and composition of sentences, and phraseological units most commonly used. A collection of 4,000 sentences will be made from 400 random samples in a statistical universe of 1,200,000 running words from 93 Soviet plays published between 1957 and 1963. The sentences will be classified, analyzed, coded, and programed for computer operations. The printout date will be analyzed and submitted to Russian language specialists in the United States for their commentary.

424. EP011020
$104,425
APPLICATION OF MATHEMATICAL LEARNING THEORY TO SECOND-LANGUAGE ACQUISITION WITH PARTICULAR REFERENCE TO RUSSIAN
Investigator—Van Campen, J. A.; Suppes, Patrick
Stanford Univ., Calif.
Bureau Number—BR–7–1209 Proposal Date—16 Aug 67
Instructional Materials and Practices Branch, DESR
California Congressional District No. 10
Contract—OEC–0–8–001209–1806–014
FY68—$104,425
Descriptors—Computer-Assisted Instruction, Language Instruction, Material Development, Mathematical Applications, Mathematical Linguistics, Mathematical Models, Instructional Innovation, Russian, Second Language Learning, Individual Instruction, Learning Theories
Start date 1 Sep 67 End date 31 Aug 68

Materials for a computer-based, 1st-year course in Russian, prepared under contract OEC–6–14–009, will be revised and supplemented in the current project. Special attention will be given to the development of techniques for the individualization of instruction by (1) response-dependent correction routines and (2) test-score-dependent recycling routines. Such skills as pronunciation and handwriting which cannot be tested conveniently online will be handled by supplementary language-laboratory work, the output of which (written sentences and pronunciation tapes) will be analyzed by ordinary non-computer methods. Much of the new research will be based on the performance of as many as 36 college students who will use the computer-based materials and accompanying laboratory drills in their study of 1st-year Russian. The investigators expect that the experimental materials will be suitably revised for inclusion in regular, college-level, introductory course offerings in the Russian language.

425. EP011406
$23,166
THE CONSTRUCTION OF AN ALGORITHM FOR STEM RECOGNITION OF THE HEBREW LANGUAGE
Investigator—Katsh, Abraham I.
New York Univ., N.Y.
Bureau Number—BR–8–0677
Contract—OEC–0–8–000134–3547
Descriptors—Algorithms, Computers, Computer Science, Dictionaries, Hebrew, Languages, Linguistics, Models, Nominals, Reference Books, Reference Materials, Research Tools, Semitic Languages, Teaching Methods, Teaching Techniques, Thesauri, Verbs, Word Lists
Start date 28 Jun 68 End date 31 May 69

The object of this research is to construct a Hebrew Language reference dictionary. The dictionary will consist of two sections—a noun section, and a verb section. Entries are to be classified to be adaptable for computer operations designed for special investigations of Hebrew Linguistics. This dictionary will supplement completion of an algorithm for recognizing stems in the Hebrew language (currently being constructed under USOE Project BR–6–1263. OEC–17–061263–1656). A further objective of this study is the examination of the theory of rules designed for the algorithm in terms of a new method for teaching the Hebrew Language. Recent scientific dictionaries will be studied to select appropriate entries and relevant information. Tables, already established, will be applied to correlate grammatical categories with the aggrupation of all Hebrew affixes. These tables have already furnished the computer with a basis for fractionalizing words and testing the fractionizations in various combinations to obtain a residue of stem-affix combinations. The projected dictionary will be used to facilitate computer elimination of illegitimate stem-affix combinations.

426. EP011407
$43,499
AN INVESTIGATION OF THE ELEMENTS OF SPOKEN BRAZILIAN PORTUGUESE
Investigator—Hutchins, John A.
Naval Inst., Annapolis, Md.
Bureau Number—BR–8–0678
Contract—OEC–0–8–000130–3543
Descriptors—Computational Linguistics, Computers, Language Research, Languages, Language

Usage, Oral Communication, Portuguese, Romance Languages, Standard Spoken Usage, Word Frequency, Word Lists

Start date 25 Jun 68 End date 23 Sep 69

A research project (already in progress and supported by the U.S. Naval Academy Research Council) will be extended for a study of spoken Brazilian Portuguese. The investigation will attempt to derive basic elements of spoken Portuguese using recorded radio telephone circuit conversations transcribed for analysis by a computer. The computer output to be produced will include a listing of the 1,500 most common words used orally. It is expected that frequency of tenses and idiomatic expressions can also be extracted. The computer output (printouts) will be useful for designing courses to teach standard spoken usage Portuguese language courses. Findings will be made available to persons working in the Portuguese language field. Production plans allow for 250 copies of the frequency list and verb form frequencies to be prepared for dissemination.

427. EP011408

$147,582

POLITICS AND DIPLOMACY IN THE ARAB WORLD: CHRONOLOGICAL AND DOCUMENTARY INFORMATION DATA: 1800–1967.

Investigator—Mansoor, Menahem

Wisconsin Univ., Madison.

Bureau Number—BR–8–0814

Contract—OEC–0–8–000131–3544

Descriptors—Area Studies, Documentation, Foreign Culture, Foreign Relations, Information Centers, Information Dissemination, Information Processing, Information Retrieval, Information Services, Information Storage, Information Systems, Social Studies

Start date 28 Jun 68 End date 30 Jun 69

The purpose of this project will be to identify, study, and critically describe all Arabic documents and Arab International agreements from 1930-1967 as well as currently relevant prior agreements. Included in the study will be Arab agreements, constitutions, declarations, decrees, oil concessions, exchange of notes, letters, messages, important laws bearing on international relations, memoranda, minutes (agreed), protocols, reports, television and radio statements, treaties, verbal notes, ratifications, policy speeches and articles, United Nations' reports and resolutions. The project will meet a current and increasing demand for information to support area, centered studies of the Arab world through a computer-based documentary analysis, storage, and retrieval system. An analytical index will be formed using facilities of the University of Wisconsin Computer Center. The effort will be performed in three parts—(1) a study of internal legislation of the Arab Countries influencing international law and relations, (2) a study of regional documents affecting only the Arab states, and (3) a study of Arab documents bearing on relations between the Arab countries and other parts of the world.

428.

$22,356

JAVANESE-ENGLISH DICTIONARY

Proposal No. 6–2415–1–22–4

Contractor: Harvard University

Investigators: Elinor C. Home & Karl Teeter

Start date 01 Aug 66 End date 31 Jan 68

Purpose of Project: The goal of the research is to produce, for the use of English speakers, a Javanese-English dictionary which reflects contemporary Javanese usage.

Javanese, with 45,000,000 speakers is among the ten most widely spoken languages in the world. It is one of the principal languages of Indonesia. Yet no Javanese-English dictionary has ever existed. As a language learning tool, such a dictionary is urgently needed. Additionally, this dictionary will serve current Government and private needs.

The proposed research is Phase II of a Javanese-English dictionary. It is planned to continue without interruption the work of Phase I, Contract No. OE–5–14–037, which will terminate July 31, 1966. The project calls for computer-processing of about one million words of current standard Javanese text. Materials to be processed will consist of newspapers and magazines obtained from Java, and tape recorded conversations spoken by Javanese people. At the close of Phase II, the physical form of the dictionary will be a file of typed IBM cards containing the dictionary entries. Each entry will include: (1) the lexical item in its root form, (2) the social style (formal, informal) to which it may belong, (3) the definition and most approximate English equivalent, (4) common phrases which include the item, and (5) derived forms.

429.

$84,994

COMPUTER COUNT COVERING MILLION-WORD REPRESENTATIVE SAMPLE OF PAI-HUA-WEN

Proposal No. 9–7733

Princeton University

Start date 01 Jun 69 End date 31 Dec 70

The program purpose is to make a computer count covering a million-word representative sample of *pai-hua-wen,* Modern Vernacular Literature Chinese (MVL). It will use the resultant tape to produce frequency counts of individual characters and of two-, three-, and four-character sequences for use in both lexical and structural analysis. In addition, it will derive sample concordances for portions of the material and evaluate them, both because of their inherent interest and because the implications of such experiments—their utility and their cost—need exploration, especially for the field of Chinese linguistics, in which basic theoretical questions remain unresolved.

Basic staff to carry out the project is available at Princeton or, for the first phase (if that is telegraph-coding), abroad.

National Defense Education Act—Title VII-Part A

430. EP000241

$9,450

COMPUTER AIDED INSTRUCTION FOR A COURSE IN BOOLEAN ALGEBRA AND LOGIC DESIGN

Investigator—Roy, Rob

Rensselaer Polytechnic Inst., Troy, N.Y.

Bureau Number—BR-5-1081 Proposal Date—66

Instructional Materials and Practices Branch, DHER.

New York Congressional District Number 30.

Grant—OEG-1-6-051081-0660

FY66—$9,450

Descriptors—Academic Achievement, Autoinstructional Aids, Background, College Students, Computer Assisted Instruction, Computer Oriented Programs, Computers, Instructional Technology, Programed Instruction, Programed Materials, Programing

Start date 15 Apr 66 End date 15 Sep 67

Evidence will be obtained on the usefulness of computer-aided instruction for entering students (college freshmen and graduate students) with insufficient academic backgrounds to begin a regular curriculum sequence. This pilot study will use the subject of Boolean algebra and logic as a prerequisite for graduate sequences in the fields of digital computers, automation, and learning machines. A sample of 40 students will be drawn from among those seniors and graduate students who would regularly be taking two logic design courses in sequence. The sample will be divided into two categories—(1) students who will take the logic design courses in normal sequence, and (2) students who will take a computer-aided course, equal to the first course, and the regular second course simultaneously. The experimental computer-aided course will be evaluated by comparing student scores on a comprehensive examination administered on the material of the regular first course, and student performance in the second course. Standard statistical measures will be applied.

431. EP000256

$32,384

METHODS OF PRESENTING PROGRAMED INSTRUCTIONAL MATERIALS BY TEACHING MACHINE AND COMPUTER

Investigator—Marzocco, Frank N.; Davis, Robert H.

Michigan St. Univ., East Lansing, Hum. Lng. Res. Inst.

Bureau Number—BR-5-119 Proposal Date—66

Instructional Materials and Practices Branch, DHER

Michigan Congressional District No. 6

Grant—OEG-3-6-051119-1211

FY66—$32,384

Descriptors—Computer Oriented Programs, Individual Characteristics, Learning Processes, Programed Instruction, Cognitive Processes, College Students, Individual Differences, Michigan, Programmed Materials, Student Characteristics

Start date 01 Jun 66 End date 31 Dec 67

Determinations will be made on the following points—(1) whether certain major, independent parameters of programed instruction interact with college students' individual differences, (2) whether college students are able to select the method of programed instruction which best suits their learning conditions, and (3) what roles computer-assisted instruction (CAI) actually plays with respect to this population. About 600 enrollees in remedial algebra will serve as the experimental sample. At least 60 more algebra students will be observed in control groups for cross-validation purposes. Two treatments of programed learning materials will be prescribed for part of the experimental sample, and two additional treatments will be offered which emphasize subject choice in selecting the materials. Factors to be measured during treatments will include exit behavior, performance, attitudes, and scores on criterion tests. Such variables as sex, grade-point average, age, and personality differences will be considered, as well. Correlational technique and regression lines will be employed to analyze the resulting data. Where in-

consistencies are indicated on the "During-Treatment" factors, the student option variable will determine if the computer is necessary to help students select their proper program treatment. This research should provide important implications in terms of the effective adaptation of computers to educational programs.

432. EP000331
$64,940
METHODS OF PRESENTING PROGRAMED SCIENCE MATERIALS TO FOURTH GRADE PUPILS OF VARYING ABILITY AND ACHIEVEMENT
Investigator—MacDougall, Mary A.
Virginia Univ., Charlottesville.
Bureau Number—BR–6–1310 Proposal date—31 Aug 65
Instructional Materials and Practices Branch, DESR.
Virginia Congressional District Number 7
Grant—OEG–2–6–061310–1743
FY66—$33,448; FY67—$31,492
Descriptors—Academic Ability, Academic Achievement, Computer Oriented Programs, Grade 4, Optional Branching, Programed Materials, Science Instruction, Student Characteristics, Teaching Methods
Start date 15 Jun 66 End date 30 Jun 69

The objectives of this project will be to determine—(1) methods of programed instruction which are suitable for various levels of ability, achievement, knowledge, and conceptual attainment, and (2) the effectiveness of these instructional methods as remedial branches. High- and low-ability, fourth grade students with comparable expected achievement will use programed science materials of four different branching types. Science concepts will be classified using 'Bloom's Taxonomy." Tutorial sessions will follow, and a final evaluation will occur with students of varying ability levels using prepared materials.

433. EP000477
$8,400
RANDOM VERSUS ORDERED SEQUENCING IN COMPUTER-ASSISTED INSTRUCTION
Investigator—Wodtke, Kenneth H.
Pennsylvania State Univ., University Park
Bureau Number—BR–5–8334 Proposal date—27 Jan 65
Research Branch, DHER
Pennsylvania Congressional District No. 17
Grant—OEG–1–6–058334–1819
FY66—$8,400
Descriptors—Computer Programs, Educational Research, Programed Instruction, Learning, Learning Difficulties, Verbal Ability, Achievement Tests, Modern Mathematics, Audiology, Computer-Assisted Instruction, University Park
Start date 10 Jun 66 End date 31 Mar 67

A comparison of the effects of random versus ordered sequencing of instructional units is planned. The basic experimental design will be a 2×2 factorial design. The two independent variables will be (1) high and low student verbal ability, and (2) random versus ordered item sequences. The covariate or control variable will consider achievement pretests administered on the subject matter areas covered. Pretest scores will be controlled by means of analysis of covariance. Typing skill of students will be measured due to the typewriter mode of response input to the computer. The major dependent variable will be student post-test performance. The post-test will consist of two parts (1) one in which tests recall material covered in the program, and (2) one in which tests measure the ability of students to apply a principle taught in the program to new problems. Two instructional programs will be used—modern mathematics and audiology.

434. EP000955
$1,018,522
STANFORD PROGRAM IN COMPUTER-ASSISTED INSTRUCTION
Investigator—Suppes, Patrick, Atkinson, Richard Stanford Univ., Calif.
Bureau Number—BR–6–1493 Proposal date—02 Mar 66
Instructional Materials and Practices Branch, DESR
California Congressional District No. 10
Contract—OEC–4–6–061493–2089
FY66—$385,113; FY67—$559,356; FY68—$74,053;
Descriptors—Computer-Assisted Instruction, Elementary Education, Language Arts, Reading Instruction, Mathematics Instruction, Stanford
Start date 29 Jun 66 End date 31 Jul 69

Computer-assisted instruction will be developed and evaluated in three closely related areas—(1) elementary school mathematics, (2) elementary-school reading, and (3) supplementary drill and maintenance exercises in mathematics and the language arts for the elementary school. The present proposal is submitted as an appendix to the prospectus for a national laboratory submitted October 13, 1965 to the Office of Education. The present proposal gives the details of the Stanford program for an interim basis until a decision is made about the constitution of a national laboratory. The pri-

mary focus of the Stanford program would be to develop and test computer-assisted curriculums in mathematics and language arts for the elementary school. The secondary focus proposed in the national laboratory prospectus would be suspended for the present. This means that extensive effort in learning theory, the logic of complex concept formation, and systems analysis would be curtailed under the present program.

435. EP000969
$162,595
GREAT CITIES RESEARCH COUNCIL EDUCATIONAL COMMUNICATIONS PROJECT
Investigator—Thornblad, Carl E.
Research Council of the Greater Cities Program for School Improvement, Chicago, Ill.
Bureau Number—BR-7-0715 Proposal date—01 Jan 67
Organization and Administration Studies Branch, DESR.
Illinois Congressional District Number 3
Contract—OEC-3-7-070715-3048
FY67—$107,796; FY68—$54,799
Descriptors—Communications, Comparative Analysis, Computer Oriented Programs, Computer Programs, Information Systems, Instructional Improvement, Instructional Technology, National Surveys, Program Planning, Research Opportunities, School Improvement, Status, Systems Concepts, Systems Development
Start date 09 Jan 67 End date 31 Aug 68

The relative status and inventory of current automated system developments in member districts of the Research Council of the Great Cities Program for School Improvement will be studied. In addition, planning and coordinating activities will be provided to help develop a total communications capability designed to facilitate the transmission and utilization of research and application of multimedia for instructional improvement and related communications. A status and inventory study of computer and computer-oriented information systems presently in use will be conducted and planning activities for identifying relative needs among the member districts will be pursued. Task force areas will be developed under which specific individual and cooperative projects may be undertaken.

436. EP001013
$81,002
A PROTOTYPE SYSTEM FOR A COMPUTER BASED STATEWIDE PLAN FILM LIBRARY NETWORK—A MODEL FOR OPERATION
Investigator—Oxhandler, Eugene
Syracuse Univ., N.Y.
Bureau Number—BR-7-0259 Proposal date—Aug 66
Instructional Materials and Practices Branch, DESR
New York Congressional District No. 34
Contract—OEC-1-7-070259-2656
FY67—$81,002
Descriptors—Computer Programs, Films, Library Extension, Systems Analysis, Systems Development, Models, Syracuse
Start date 16 Dec 66 End date 15 Dec 67

Under a previous contract, the feasibility of a statewide film library network was demonstrated, numerous computer programs for analyzing and manipulating film usage were produced, and steps were taken toward the development of standardized procedures for booking, cataloging and accounting in film library operation. The proposed study will require (1) data collection and analysis, (2) programing and systems design, (3) modeling and pilot testing, and (4) actual operations of the film library network. Substantial economies in effort and expenditures will be realized through the utilization of programs and procedures developed under the earlier contract. Data will be collected from additional libraries chosen to further refine the representativeness of the sample. Data analysis and modeling will continue using existing statistical and simulation programs. Additional programing will be accomplished as needed and selected collections will be prepared for admission to the system. Parallel computer booking procedures with other libraries will be investigated and from five to ten Board of Cooperative Services Centers will become operational links in the computer network.

437. EP001023
$31,989
A COMPUTER STUDY OF THE ALLOCATION OF CHANNELS AND PLACEMENT OF TRANSMITTERS FOR 2500 MEGACYCLE FIXED-STATION SERVICE IN A METROPOLITAN AREA CONTAINING MANY ELIGIBLE APPLICANTS FOR LICENSING
Investigator—Boecklen, Warren
Cooperating Schools A-V Corp. of St. Louis City, Mo.
Bureau Number—BR-6-1519 Proposal date—66
Research Utilization Branch, DITD
Contract—OEC-3-7-001519-2004
FY67—$31,989
Descriptors—Computer Programs, Computers, Cooperative Planning, Educational Television, Television Research, St. Louis.

Start date 10 Oct 66 End date 01 Jun 67

The objectives of this study are (1) to develop a computer program which would be useful, nationally, in developing channel allocation and transmitter placement plans for urban areas having many school systems, (2) to determine the pattern of channel allocations and transmitter placements which will accommodate the potential users of 2500 megacycle television in the St. Louis metropolitan area, and (3) to determine those instances in which leased coaxial cables represent a preferable system for interconnection of schools for closed-circuit television (as opposed to 2500 megacycle interconnection) in the metropolitan St. Louis area. This study is undertaken because there is no local agency which has the power to control channel allocations to diverse public, parochial and college-level school systems, and a method of channel allocations and transmitter placements must be cooperatively developed. This method must be attractive enough to command voluntary submission of the various school systems. Short of a valid computer study which dispassionately operates upon objective and uniform data, it is unlikely that a human or group of humans can provide a plan which will be accepted by all. Metropolitan areas, having numerous school systems which are eligible applicants for FCC licenses to operate multichannel 2500 megacycle stations, are likely to saturate the spectrum, thus using up all channels, in a manner which does not most efficiently place transmitters for the available channels.

438. EP001024

$107,146

ORIENTATION OF EDUCATORS AND BEHAVIORAL SCIENTISTS TO INFORMATION SYSTEMS

Investigator—Altman, James W.

American Institute for Research in Behavioral Sciences

Bureau Number—BR-7-1038 Proposal date—04 Apr 67

Library and Information Science Research Branch, DIDT

Pennsylvania Congressional District No. 14

Contract—OEC-1-7-071038-3914

FY67—$107,146

Descriptors—Data Collection, Educational Resources, Information Retrieval, Information Systems, Orientation, Behavioral Science Research, Data Processing, Educational Research, Pittsburgh

Start date 01 Jun 67 End date 31 May 68

Materials and methods will be developed for the orientation of educators and behavioral scientists to systems capable of providing information in support of their work. This effort is expected to facilitate the work of practicing educators, educational researchers, and scientists who provide much of the knowledge base upon which educational technology is built. The facilitation will be achieved by providing means by which educators and behavioral scientists can more readily learn about information resources and techniques for exploiting them for more effective educational and related work. The proposed effort will involve the gathering of data concerning available information services and systems, organization of presents to educators and behavioral scientists, selective trial presentation, obtaining of immediate and delayed assessments from persons to whom presentations are made, improvement of orientation materials on the basis of assessments, and final technical reporting of the study.

439. EP010310

$236,734

RESEARCH AND IMPLEMENTATION OF COLLEGIATE INSTRUCTION OF PHYSICS VIA COMPUTER-ASSISTED INSTRUCTION

Investigator—Hansen, Duncan; and others

Institution—Florida State Univ., Tallahassee. Inst. of Human Learning

Bureau Number—BR-7-0071 Proposal date—15 Jul 66

Instructional Materials and Practices Branch, DHER.

Florida Congressional District Number 2

Grant—OEG-2-7-000071-2024

FY67—$236,734

Descriptors—College Instruction, College Students, Comparative Analysis, Computer-Assisted Instruction, Costs, Courses, Educational Methods, Evaluation, Higher Education, Lecture, Physics Instruction, Questionnaires

Start date 15 Oct 66 End date 14 Nov 68

A computer-assisted instruction (CAI) course for introductory college physics will be prepared, modified, and compared with a lecture course. The comparisons will furnish information about—(1) the effectiveness of the presentation modes, (2) Specific learning difficulties experienced by students, (3) student reactions to the presentation modes, and (4) relationships between learning and attitude in CAI and among psychological variables reflected in aptitude and personality patterns. Available and planned CAI systems at Florida State University will be used. Evaluation proce-

dures will include new procedures of behavioral engineering, curriculum development, and multivariate analyses of learning. Time logs, taped interviews, questionnaires, and observation scales will be used also. Results will be useful for evaluating CAI as a possible solution in higher education.

440. EP010700

$7,548

A SYSTEMS APPROACH FOR AUTOMATING THE CATALOGING AND DISTRIBUTION OF EDUCATIONAL MOTION PICTURES

Investigator—Vento, Charles

University of Southern California, Los Angeles.

Bureau Number—BR-6-8910 Proposal date—67

Instructional Materials and Practices Branch, DESR

California Congressional District Number 21

Grant—OEG-1-7-068910-3715

FY67—$7,548

Descriptors—Audiovisual Aids, Automation, Cataloging, Data Processing, Films, Information Dissemination, Information Systems, Instructional Films, Instructional Technology, Library Services, Models, Operations Research, Systems analysis, Systems development

Start date 01 May 67 End date 30 Jul 68

A systems description and systems design will be developed to introduce modern information processing techniques into the cataloging, booking, and distributing of educational motion pictures. In particular, a statement of requirements for the integration of these functions into one system will be developed, and recommendations will be offered for making the system operational. A preliminary study of present systems and their operators will be made, and a comprehensive system description will be prepared. Included in the study will be the formulation of a model design of systematic approach to access and delivery of educative materials for teachers.

441. EP010890

$61,518

STATE OF THE ART STUDY OF DIAL ACCESS INFORMATION RETRIEVAL

Investigator—Ofiesh, Gabriel

Catholic Univ. of America, Washington, D.C.

Bureau Number—BR-7-1042 Proposal date—31 Mar 67

Instructional Materials and Practices Branch, DHER

District of Columbia

Contract—OEC-1-7-071042-5093

FY67—$61,518

Descriptors—Audiovisual Aids, Guidelines, Information Retrieval, Instructional Technology, Visual Learning, District of Columbia, Evaluation

Start date 28 Jun 67 End date 30 Apr 68

The dial access information systems now in operation, the extent of their use, and their contributions to educational processes will be investigated. The data gathered will be used to develop guidelines for the planning, design, installation, operation, and financing of dial access systems appropriate to various types of educational institutions and uses. Evaluation of the dial access system will be conducted by (1) establishing a list of educational institutions using dial access equipment for information retrieval, and (2) gathering data by direct contact with the institutions and by questionnaire concerning the type of equipment used, its versatility, acceptance, size of system, and degree of impact on the educational process. The guidelines handbook to be prepared will include performance specifications, equipment specifications, costs, and procedures.

442. EP010918

$48,456

DEVELOPMENT AND EVALUATION OF COMPUTER-ASSISTED INSTRUCTION FOR INSTRUMENTAL MUSIC

Investigator—Deihl, Ned C.

Pennsylvania State Univ., University Park. Coll. of Home Economics

Bureau Number BR-7-0760 Proposal date—30 Dec 66

Arts and Humanities Program, OAC

Pennsylvania Congressional District Number 23

FY67—$19,066; FY68—$22,920; FY69—$6,470

Descriptors—Autoinstructional Aids, Computer-Assisted Instruction, Concept Formation, Feedback, Individualized Programs, Instructional Technology, Learning Processes, Music Education, Music Techniques, Program Development, Program Evaluation, Sequential Approach, Skill Development

Start date 28 Jun 67 End date 28 Sep 69

A computer-assisted technique for instruction in certain instrumental music skills and concepts will be developed. This technique will employ aural models and programing principles to (1) develop an efficient method for individual practice, (2) provide instructors with specialized, sequenced instruction, (3) determine the potential of the technique for certain performance skills and concepts, and (4) provide an exploratory framework for an analysis of musical learning. The present program will be limited to articulation and phras-

ing in clarinet performance short segments of music will be taped and prerecorded in the program. These models may be used to "prompt" (precede) and "confirm" (follow) the version to be recorded by the student. The direct, immediate aural comparison by the student would serve as feedback. In addition to taping segments and comparing these with models, the student will be asked programed questions incorporating diagnostic and judgment procedures.

443. EP010942

$82,381

A COST STUDY OF EDUCATIONAL MEDIA SYSTEMS AND THEIR EQUIPMENT COMPONENTS

Investigator—Bilinski, John

General Learning Corp., Washington, D.C.

Bureau Number—BR–7–9006 Proposal date—31 May 67

Instructional Materials and Practices Branch, DHER

Contract—OEC–1–7–079006–5139

FY67—$82,381

Descriptors—Educational Equipment, Educational Finance, Educational Specifications, Educational Strategies, Estimated Costs, Expenditures, Initial Expenses, Instructional Innovation, Instructional Technology, Media Research, Models, Operating Expenses, Systems Analysis, Systems Development

Start date 28 Jun 67 End date 10 Feb 68

A study will be made of the principal cost elements in the procurement, installation, and operation of educational media and technology. The study will include (1) identification of candidate systems, (2) detail of the physical and operational characteristics of the systems, (3) development of mathematical models describing the relationship between characteristics and costs, (4) collection of cost data, including data provided by operating experience, and analysis of the selected systems, and (5) determination of potential cost savings for the systems studied, including those involving new or advance configurations and technologies. The project team will include system cost analysis, educators, media specialists, equipment engineers, and consultants. The final report will (1) describe the selected systems, indicating their application at local, regional, and national levels, (2) describe the costing model, identifying the assumptions and indicating their implications to a system's costs, (3) provide an analysis of costs in relation to measurement criteria, and (4) recommend potential cost savings that could be realized at various geographic levels of use of the new educational media systems and components.

444. EP011105

$991,564

A SYSTEM FOR INDIVIDUALIZING AND OPTIMIZING LEARNING THROUGH COMPUTER MANAGEMENT OF THE EDUCATIONAL PROCESS

Investigator—Schure, Alexander; and others

New York Inst. of Tech., Inc., N.Y.

Bureau Number—BR–8–0157 Proposal date—8 Sep 67

Instructional Materials and Practices Branch, DCVR

New York Congressional District Number 3

Contract—OEC–0–8–080157–3691

FY68—$296,880; FY69—$424,684; FY70—$270,000

Descriptors—Computer-Assisted Instruction, Computer Oriented Programs, Counseling, Educational Administration, Educational Strategies, Evaluation, Guidance, Individualized Curriculum, Instructional Design, Instructional Technology, Management, Multimedia Instruction

Start date 01 May 68 End date 30 Apr 71

A computer-based instructional management system will be developed and tested. The system will be adaptive to provide an optimum instructional systems design. Elements of the system model are (1) curriculum behavioral objectives, (2) student characteristics profiles and selection criteria, (3) instructional materials, objectives, and content, (4) instructional strategies, (5) evaluation instruments and procedures, (6) instructional decision-making, (7) organization and facilities, and (8) feedback and restructure mechanisms. The system will be used to manage individualized education and training. It will be useful as a diagnostic tool, for prescribing instructional materials and sequences, and for cost-effectiveness evaluations. Additionally, it will provide an empirical base for refinement and development of curriculum materials.

445. EP011378

$135,000

THE EDUCATIONAL INFORMATION NETWORK (EIN)

Investigator—Keenan, Thomas A.; Morse, Harrison R.

Bureau Number—BR–8–0697 Proposal date—19 Apr 68

Instructional Materials and Practices Branch, DHER

Maryland Congressional District Number 8

Grant—OEG–0–8–080697–4468

FY68—$135,000

Descriptors—Catalogs, Colleges, Computer Programs, Computers, Computer Science, Cooperative Programs, Information Dissemination, Information Services, Information Sources, Information Systems, Networks, Universities

Start date 30 Jun 68 End date 30 Jun 70

An education information network (EIN) will be established and operated by EDUCOM (Interuniversity Communications Council). EIN will be a network for sharing computational capability among network resource and user nodes. Existing and proposed networks are to be studied and critically evaluated. Working relationships will be established with developing networks to foster compatibility, avoid duplication of effort, and to discover desirable capabilities that can be made more widely accessible. Immediate products of this project will be reports of the successes and failures of existing networks and a regularly maintain catalog of computer capabilities that can be accessed though EIN (an outgrowth of EDUNET). EIN will be an organizational network basically concerned with the flow of network meta-information (billing, cost accounting instructions, standards, performance data and data concerning the state of the networks).

446. EP011461

$69,780

AN EVALUATION REVIEW OF CONVERSATIONAL USES OF COMPUTERS IN INSTRUCTION

Investigator—Zinn, Karl L.

Michigan Univ., Ann Arbor

Bureau Number—BR–8–0509 Proposal date—Feb 68

Organization and Administration Studies Branch, DHER

Michigan Congressional District Number 2

FY69—$69,780

Descriptors—Classroom Techniques, Computer-Assisted Instruction, Computer Oriented Programs, Computers, Evaluation, Programed Instruction, Teaching Machines

Start date 15 Oct 68 End date 31 May 70

A critical study will be made of the current technology, applications, costs, effectiveness and trends for uses of computers in instruction. Current, relevant, and readily interpreted information about what is being done, what has been planned, and what is judged to be most needed will be assembled for persons writing or reviewing proposals. Four documents or sets of files will be produced: a collection of position papers covering essential topics; a survey of systems, materials, operations, research studies and data on use; a bibliography of current literature; and a library of sample instructional materials. The results will be useful to persons writing proposals, planning programs and reviewing proposals to conduct research or to apply computers in the schools.

447. EP011871

$1,145,000

DEVELOPMENT OF A MULTI-MEDIA COURSE IN PHYSICS FOR THE U.S. NAVAL ACADEMY

Investigator—Schure, Alexander

New York Inst. of Tech., Inc., N.Y.

Bureau Number—BR–8–0446 Proposal date—67

Instructional Materials and Practices Branch, DCVR

New York Congressional District Number 3

Contract—NOO600–68–C–0749

FY68—$375,000; FY69—$525,000; FY70—$245,000

Descriptors—Computer-Assisted Instruction, Computer Oriented Programs, Curriculum Development, Curriculum Evaluation, Educational Technology, Instructional Programs, Instructional Technology, Management Systems, Multimedia Instruction, Physics Curriculum

Start date 1 Mar 68 End date 14 Sep 70

The overall objective of this project is to develop an optimized instructional system for teaching a single semester course in General Classical Physics at the U.S. Naval Academy. The specific objectives may be summarized as: (1) to improve the learning of Academy students in the physics curriculum and subject sequences through a computer-based management system of the educational process; (2) to design the proposed management system so that it is capable of being applied at virtually any educational level for numerous disciplines; (3) to develop procedures to optimize the design of instructional systems; (4) to implement and test the model by applying it to the general physics curriculum of the Naval Academy; (5) to evaluate the effectiveness of the program both in its tooling stage and in its operation; (6) to restructure and reassess the program for maximum performance characteristics.

448. EP011872
$643,000
DEVELOPMENT OF A MULTI-MEDIA COURSE IN ECONOMICS FOR THE U.S. NAVAL ACADEMY
Investigator—Livingston, J. Sterling
Sterling Inst., Washington, D.C.
Bureau Number—BR–8–0447 Proposal date—Sep 67
Instructional Materials and Practices Branch, DCVR
District of Columbia
Contract—NOO600–68–C–0750
FY68—$240,660; FY69—$302,220; FY70—$100,120
Descriptors—Curriculum Development, Curriculum Evaluation, Economics, Educational Technology, Instructional Technology, Multimedia Instruction
Start date 1 Mar 68 End date 14 Sep 70

This project involves the development, testing, and evaluation of a multimedia course in economics. The instructional material will be presented through various media, selected for its appropriateness both to the subject matter to be covered and to the needs of the students, with the intent that the student will progress most satisfactorily as a result of the particular configurations chosen. The course will be organized around five major concept areas: (1) The Nature of American Capitalism—Its Essence: The Price System; (2) National Income and Employment—Fiscal Policy; (3) Money and Monetary Policy; (4) The Economics of the Business Firm—Allocating Resources; and (5) Economic Problems (domestic and international) and Social Controls.

449. EP011873
$1,350,000
DEVELOPMENT OF A MULTI-MEDIA COURSE IN LEADERSHIP FOR THE U.S. NAVAL ACADEMY
Investigator—Tosti, Donald T.
Westinghouse Learning Corp., New York, N.Y.
Bureau Number—BR–8–0448 Proposal date—11 Sep 67
Instructional Materials and Practices Branch, DCVR
New York Congression District Number 17
Contract—NOO600–68–C–1525
FY68—$400,000; FY69—$500,000; FY70—$450,000
Descriptors—Curriculum Development, Curriculum Evaluation, Educational Technology, Instructional Technology, Leadership, Leadership Training, Multimedia Instruction
Start date 28 Jun 68 End date 27 May 71

This project involves the design, fabrication, validation, and implementation of a multimedia course in Leadership for the U.S. Naval Academy. To perform this task the contractor will: (1) develop sets of measurable behavioral objectives based on jointly defined instructional messages; (2) structure and sequence objectives in accordance with behavioral hierachies and pedagogical, logical, interest, and administrative criteria; (3) develop and integrate remedial and enrichment objectives into the overall core structure to permit individualized learning paths and instruction; (4) design and implement a complete program of assessment and evaluation of learning materials, student performance and media effectiveness; (5) analyze and select the best media for learning on the basis of objectives, types of learning, learner background, motivation, and administrative criteria. This analysis will include the evaluation of new developments in the multimedia area; (6) design and fabricate all materials required for the effective utilization of selected media; prepare additional materials to support studies on the trade-offs between student effectiveness and cost for each medium; (7) design and implement a data collection and analysis system to develop media/student cost-effectiveness information so as to provide decision criteria for the design of future courses; (8) validate all measurement instruments and instructional materials; revise materials and measurement instruments as necessary; (9) specify, design, debug, implement, and document computer programs, as required, for program evaluation and cost-effectiveness studies, efficient utilization of the CAI medium, and efficient application of the latest CMI (computer-manager instruction) techniques; (10) document the results of all evaluation studies; generate, and revise as necessary, a Learning Materials Design Specification; (11) revise as necessary and submit all materials and computer programs required for the continuation of the course of instruction; (12) provide an on-site instructor, faculty orientation, and implementation support of the program; generate faculty and student user manuals.

National Defense Education Act—Title VII-Part B

450. EP000561
$57,421
THE COMPUTER SIMULATION OF A STATEWIDE FILM LIBRARY NETWORK, A FEASIBILITY STUDY
Investigator—Oxhandler, Eugene
Syracuse Univ., N.Y., Research Institute
Bureau Number BR-5-0272 Proposal date—65
Dissemination Branch, DRTD
New York Congressional District No. 34
Contract OEC-5-16-024
FY65-$34,325; FY66-$23,096
Descriptors—Library Facilities, Data Processing, Instructional Films, Library Services, Information Retrieval, Information Dissemination, Media Research, Research, Films, Filmstrips, Computer Programs, Boards of Cooperative Educational Services
Start date 01 May 65 End date 31 Dec 66

An investigation is proposed for the purpose of determining feasibility of utilizing a central computerized booking, distribution, acquisition, and bookkeeping system for regional film libraries. All data on film holdings, booking and bookkeeping techniques, usage, and budgets will be gathered from existing Boards of Cooperative Educational Services. The Division of Educational Communications of the New York State Department of Education will contribute its productions and plans. A computer simultation program will be designed and the entire system will be tried in several alternate modes to determine the most economically feasible plan of operation.

451. EP000763
$219,059
THE DEVELOPMENT AND PRESENTATION OF FOUR DIFFERENT COLLEGE COURSES BY COMPUTER TELEPROCESSING
Investigator—Mitzel, Harold
Pennsylvania State Univ., University Park
Bureau Number—BR-5-1194 Proposal date—64
Dissemination Branch, DRTD
Pennsylvania Congressional District No. 17
Contract—OEC-4-16-010
FY64-$97,014; FY65-$119,984
Descriptors—Computer-Assisted Instruction, In-service Teacher Education, College Curriculum, Computer Programs, Instructional Materials, Programed Instruction, Media Research, Coursewriter
Start date 01 Apr 64 End date 31 Dec 66

A study is to be made of the feasibility of using teachers, who are unfamiliar with computer systems, to prepare subject materials for computer presentation. Four college-level courses will be prepared for computer presentation using the coursewriter computer language. The computer-assisted instruction (CAI) incorporating computer-controlled audiovisual components, will be field tested. A manual for using coursewriter computer language will then be prepared. The CAI techniques used will be demonstrated to government representatives, academic professors, school administrators, and teachers and others concerned with improving educational media.

452. EP010811
$112,586
SOUTHERN CALIFORNIA AUTOMATED CATALOGING PROJECT
Investigator—McMurry, Glenn
University of Southern California, Los Angeles
Bureau Number—BR-5-1016 Proposal date—24 Jan 64
Dissemination Branch, DRTD
California Congressional District No. 21
Contract—OEC-4-16-031
FY64-$55,948; FY65-$56,638
Descriptors—Cataloging, Information Systems, Automation, Audiovisual Centers, Films, Mass Media, Library Services, Cooperative Programs, Indexes (Locaters), Catalogs, Instructional Technology
Start date 30 Jun 64 End date 31 Dec 66

An experimental, automated cataloging service will be established for the audiovisual centers in the eight countries of Southern California. Approximately 30 centers will cooperate, including school districts, county school systems, and other deposito-

ries. The overall program plan is for an eventual cataloging system covering the entire range of new media. This project will be phase 1 of the overall effort and will cover motion picture holdings only and an examination of the problems associated with cataloging other media. The cataloging service will make use of a computer and other automatic equipment for developing an information storage and retrieval and printout system for catalog information. Such a system will offer economy in both time and money for the cooperating audiovisual centers.

453.
$21,329
A WORKSHOP CONFERENCE ON COMPUTER AIDED INSTRUCTION AND ON THE IMPACT OF COMPUTER SYSTEMS ON UNIVERSITIES
Principal Investigator—Gerard, Ralph W.
Univ. of Cal., Irvine, Cal.
Bureau Number—BR-5-0997
Contract Number—OE-5-16-022
Start date 01 May 65 End date 31 Oct 66
FY65—$19,874; FY66—$1,455
No abstract available

454.
$10,769
THE COMPUTER: A NEW MEDIA FOR THE IMPROVEMENT OF INSTRUCTION
Principal Investigator—Bushnell, Don
Brooks Foundation, Santa Barbara, Cal.
Bureau Number—BR-5-1129
Contract Number—OEC-4-6-051129-0753
Start date 15 Apr 66 End date 15 Oct 66
FY66—$10,769
No abstract available

455. EP001044

$7,808

THE DEVELOPMENT AND PILOT OPERATION OF A SYSTEM TO RECLASSIFY OLDER BOOKS AND PROCESS NEW BOOKS UNDER THE LIBRARY OF CONGRESS CLASSIFICATION SYSTEM FOR A PUBLIC LIBRARY CURRENTLY EMPLOYING THE DEWEY DECIMAL CLASSIFICATION

Investigator—Sherman, Stuart C.

Providence Public Library, R.I.

Bureau Number—BR-7-8381 Proposal date—15 Mar 67

Library and Information Sciences Res. Branch DITD

Rhode Island Congressional District No. 2

Grant—OEG-1-7-078381-4544

FY67—$7,808

Descriptors—Cataloging, Data Processing, Documentation, Library Programs, Pilot Projects, Dewey Decimal Classification System, Information Systems, Library of Congress Classification System, Providence, Surveys

Start date 30 Jun 67 End date 30 Jun 68

This proposal is designed to uncover the problems a public library might encounter in reclassifying its collection from the Dewey decimal system to the Library of Congress system, to note problems related to processing new books according to the new system, to apply data processing techniques to the task, to establish procedures for reclassification, and to provide an accurate cost estimate for the conversion and processing. A survey of the existing classification situation will be undertaken, and a pilot processing test involving 1,000 cataloged and classified titles along with 500 new titles will be implemented.

456. EP010745

$7,500

A STUDY OF THE COMPUTER ARRANGEABILITY OF COMPLEX TERMS OCCURRING IN A MAJOR TOOL USED IN SUBJECT ANALYSIS

Investigator—Tauber, Maurice F.

Columbia Univ., New York, N.Y.

Bureau Number—BR-7-8045 Proposal date—24 Jun 66

Library and Information Sciences Research Branch, DITD

New York Congressional District Number 20

Contract—OEC-1-7-078045-3545

FY67—$7,500

Descriptors—Catalogs, Computer Programs, Data Processing, Documentation, Indexes (Locaters), Library Programs, Library Science, Library Services, Program Development, Technological Advancement

Start date 01 Jun 67 End date 28 Feb 69

A set of rules will be written and tested for the mechanical arrangements, filing, and expression of Library of Congress subject headings. Rules will be written, using nonmechanically arrangeable subject headings in a Library of Congress subject heading list, to guide the revision of Library of Congress headings so that they can be mechanically arranged according to the computer filing code previously written by the project adviser and the principal investigator. The planned changes will eliminate the use of punctuation as a filing element. The rules will be written to make the conversion of old headings to the new format a simple clerical task. To test these rules, both a clerk and the principal investigator will do a certain amount of converting, and the results of both efforts will be compared. The rules will be further tested by putting the converted headings in machine readable form and sorting them by computer, according to the program already written and tested for the computer filing code.

457. EP010770

$551,927

AN INFORMATION STORAGE AND RETRIEVAL SYSTEM FOR BIOLOGICAL AND GEOLOGICAL DATA

Investigator—Squires, Donald F.

Smithsonian Institution, Washington, D.C. Museum of Natural History

Bureau Number—BR–7–1159 Proposal date—67

Library and Information Sciences Research Branch, DITD

District of Columbia

Grant—OEG–1–7–071159–4425

FY67—$292,927; FY69—$259,000

Descriptors—Biology, Computers, Data Processing, Geology, Information Dissemination, Information Retrieval, Museums

Start date 21 Jun 67 End date 22 Jun 70

The Smithsonian Institution is developing a comprehensive institution information retrieval system to provide information to the scientific community, including students, university faculty members, and research institute scholars. Because collected speciments are the core of biological and geological information, a computerized system of collection management is essential not only to efficiently use museum resources, but also to serve as an interface with conventional libraries and other subject-oriented facilities. The communication between the user and the system is accomplished through COBOL, a common procedural language designed for commercial data processing. The user states his requests in the form of "if" statements and indicates relationships which will satisfy his request. The user does not concern himself with file structure or input and output commands since these are performed by the system in conjunction with COBOL. The development of the proposed system will permit greater accessibility of fundamental resource materials of specimens and related data to students at all levels, as well as senior scholars.

458. EP010771

$1,168,197

BIBLIOGRAPHIC AUTOMATION OF LARGE LIBRARY OPERATIONS USING A TIME-SHARING SYSTEM (PROJECT BALLOTS).

Investigator—Veaner, Allen B.

Stanford Univ., Calif.

Bureau Number—BR–7–1145 Proposal date—May 67

Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DITD

California Congressional District Number 10

Grant—OEG–1–7–071145–4428

FY67—$417,490; FY69—$499,307; FY70—$251,400

Descriptors—Cataloging, Communications, Computers; Information Processing, Information Retrieval, Library Facilities

Start Date 26 Jun 67 End Date 28 Jun 70

A large-scale time-shared computer will be applied to the basic bibliographic management of a large research library to (1) speed up the processing of new acquisitions, (2) lead to an eventual reduction of unit operating costs, (3) reduce clerical waste and inefficiency, and (4) reduce the communication barriers between the library's contents and its community of users. This will be achieved by providing on-line, remote access to a central, computer-maintained bibliographic file for the basic library functions. The IBM 360/67 will be usein in time-sharing mode to (1) design and organize bibliographic files compatible with Library of Congress machine-readable records, and with business files matching the system requirements of the purchasing department, registrar, and controller, (2) design, program, test, and operate centralized library technical services based on computer-maintained bibliographic files, (3) conduct traffic and installation studies and install a communications network to provide remote access to and display of the records to the using public and the staff, (4) develop the software needed to operate high capacity, fast visual display consoles, and (5) disseminate the results of its work.

459. EP010772

$341,763

AN INFORMATION PROCESSING LABORATORY FOR EDUCATION AND RESEARCH IN LIBRARY SCIENCE

Investigator—Maron, M. E.

California Univ., Berkeley

Bureau Number—BR–7–1085 Proposal date—67

Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DITD

California Congressional District Number 7

Grant—OEG–1–7–071085–4286

FY67—$141,763; FY69—$200,000

Descriptors—Computer-Assisted Instruction; Demonstrations (Educational); Information Processing; Library Science; Training Laboratories

Start date 15 Jun 67 End date 3 Jul 70

An investigation will be made of the problems concerning the design, organization, operation, and evaluation of an information processing laboratory for library science students. The laboratory will be designed to educate and train library science students on the subject of applying information processing techniques to the problems of libraries. Specifically, the laboratory will provide (1) the tools

needed for demonstration and use of information processing techniques, (2) the means for determining the use of on-line computer-assisted instructional techniques to teach both information processing and traditional librarianship, and (3) the equipment and facilities needed by advanced students to conduct empirical research as part of their dissertation work. The investigation, will proceed in three overlapping phases of study, extending over a period of 18 months—(1) preliminary systems design and specification, (2) acquisition and organization of pilot equipment, data, and related software, and (3) preliminary testing of the functioning of the laboratory during one academic quarter.

460. EP010784

$114,297

DEVELOPMENT OF THE CONCEPT OF AN EXPERIMENTING AND EXTENDED COLLEGE LIBRARY

Investigator—Taylor, Robert S.

Hampshire Coll., Amherst, Mass.

Bureau Number—BR–7–1180 Proposal date—10 May 67

Responsible BR.—Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DITD

Massachusetts Congressional District Number 1

Grant—OEG–1–7–071180–4351

FY67—$64,408; FY69—$49,889

Descriptors—Audiovisual Aids, College Libraries, Information Processing, Information Utilization, Library Facilities, Library Materials, Library Programs, Library Services, Research

Start date 15 Jun 67 End date 15 Sep 70

The objective of this proposed phase I of a library development program is to provide an intellectual and empirical base for new and enriched departures in the interaction between a college library and its academic environment, using an experimenting institution, Hampshire College, as the context. The project would serve as a prototype design to demonstrate to other undergraduate colleges an integrated set of solutions. There are three areas of concern—(1) students must participate in the usual processing activities of the library, as well as in the reference and communication functions, (2) students should participate in learning experiments, and (3) the library should be extended into activities beyond the traditional book library such as a bookstore, a display gallery, a computing center, an information transfer center, and a film workshop. Completion of phase I of this total project will be followed by phase II which will use the accumulated data for the development of detailed programs and operations. Phase II will also include development of the library collection, final drafting of a book, "The Making of a Library," and a conference on experimentation and student participation in library operations.

461. EP010833

$75,000

STUDY OF THE IMPLICATIONS OF MODERN TECHNOLOGY IN SMALL COLLEGE LIBRARIES

Investigator—Turner, Edward F., Jr.

Washington and Lee Univ., Lexington, Va.

Bureau Number—BR–7–0910 Proposal date—1 Jun 67

Library and Information Sciences Research Branch, DITD

Virginia Congressional District Number 7

Grant—OEG–1–7–070910–3706

FY67—$75,000

Descriptors—Automation, College Libraries, Information Processing, Information Retrieval, Information Storage, Innovation, Library Programs, Library Science, Small Schools

Start date 15 Jun 67 End date 28 Feb 69

Research and analysis will be conducted to determine the most efficient and economical means of applying technological innovations to the small college or community library. In addition, knowledge of the peculiar organizational problems of libraries will be used to assist in finding ways to apply automation and information handling to library operations. Through the application of modern technology, the library should more easily attain its goal of better and more extensive service to its clientele. The investigator will examine a series of problems in trying to assess the requirements of the modern college library. Some of the problem areas are student needs, faculty needs, information availability, changes in user patterns, and compact storage of materials. These problem areas will be approached from the view of using the latest advances in information handling and educational technology.

462. EP010843

$56,301

DEVELOPMENT OF THE PRINCIPLES OF CATALOGING—PHASE I—DESCRIPTIVE CATALOGING

Investigator—Lubetzky, S.

California Univ., Los Angeles, School of Library Service

Bureau Number—BR–7–1089 Proposal date—67

Library and Information Science Research Branch, DITD.

California Congressional District Number 28

Contract—OEC–1–7–071089–4284

FY67—$56,301

Descriptors—Cataloging, Data Processing, Documentation, Indexing, Information Systems, Library Science

Identifiers—LOS ANGELES

Start date 15 Jun 67 End date 15 Jun 69

An investigation will be made on the fundamental, historical and theoretical aspects of descriptive or bibliographic cataloging, including the purposes to be served, the problems involved, and the principles which should underlie a cohesive, rational, and purposeful cataloging system. The investigation will cover the following topics (as related solely to descriptive cataloging)—(1) historical development of cataloging rules and principles, (2) analysis of aims and objectives of cataloging, (3) design and function of catalog entries, (4) actual entry of documents, (5) description of bibliographic entity, (6) implications of computerization, and (7) organization of catalogs. This project will be followed by a corresponding study of subject cataloging which is to be applied to the product of the descriptive cataloging study. (JH)

463. EP010845

$90,000

A COMPUTER-BASED SYSTEM FOR RESERVE ACTIVITIES IN A UNIVERSITY LIBRARY

Investigator—Fasana, Paul J.; Logsdon, Richard H.

Columbia Univ., New York, N.Y.

Bureau Number—BR–7–129 Proposal date—16 Jun 67

Library and Information Sciences Research Branch, DITD

New York Congressional District Number 20

Grant OEG–1–7–071129–5047

FY67—$90,000

Descriptors—Booklists, Classroom Materials, College Libraries, Computer Programs, Data Processing, Library Materials, Library Programs, Textbooks

Start date 01 Jun 67 End date 30 Jun 69

A determination will be made of the feasibility of designing a generalized computer-based system which would perform reserve activities for university libraries and be applicable to reserve environments irrespective of their size or subject orientation. On the immediate user level, such a system would provide to professors and students complete listings of books on reserve for particular courses. An analysis of several reserve systems, varying in volume of work done and subject area covered, will be conducted. The processing functions common to all of the systems studied will be isolated and stated. A generalized system of procedures will be formulated. Computer programs will be written and pilot systems initiated to operationally test the validity of the generalized system design. Initially, the computer system will be off-line. As effort progresses, on-line processing will be incorporated, and a functional comparison of the two processing modes within the system will be done.

464. EP010849

$109,219

STUDY OF USER REQUIREMENTS IN IDENTIFYING DESIRED WORKS IN A LARGE LIBRARY

Investigator—Lipetz, Ben-Ami

Yale Univ., New Haven, Conn.

Bureau Number—BR–7–1140

Proposal Date—03 May 67

Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DIDT

Connecticut Congressional District Number 3

Grant—OEG–1–7–071140–4427

FY67—$109,219

Descriptors—Automation, Cataloging, Catalogs, Computers, Library Skills, Library Standards

Start date 15 Jun 67 End date 31 Dec 69

A study will be made of the requirements of library users when seeking to identify desired works within a large collection. The study will be conducted with the characteristics and capabilities of computers in mind. The attempt will be to determine whether there are features of conventional library catalog cards and of conventional cataloging practice which should be altered in a computerized system to achieve better user service or more economical processing. User need will be studied by means of a carefully designed series of interviews conducted with library users as they approach the card catalog of a university library. The interviewers will attempt to elicit the precise categories and specificity of identifying date which users have in

mind when initiating a search. Pertinent works identified by users will be examined, as will the catalog cards which describe those works. Attempts will be made to formulate rules of file organization which would assure efficient identification of the pertinent works in a large computerized system. Cataloging requirements will be examined to see whether simplified, possibly automated, procedures would suffice for input to a computerized catalog system, or whether, conversely, more detailed and complex input processing may be desirable.

465. EP010851

$10,983

AN EXPLORATORY STUDY OF THE OCCUPATION OF TEACHER OF LIBRARIANSHIP

Investigator—Aceto, Vincent J.

Case Western Reserve Univ., Cleveland, Ohio

Bureau Number—BR-7-1168

Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DITD

Ohio Congressional District Number 22

Grant—OEG-1-7-071168-5069

FY67—$10,983

Descriptors—Career Choice, Higher Education, Job Analysis, Library Science, Questionnaires, Teacher Characteristics

Start date 15 Jun 67 End date 31 Dec 68

The occupation of "Teacher of Librarianship" will be described and analyzed. Empirical data will be collected on the social origins, educational preparation, career choice, career patterns, social and professional activities, and career appraisals of full-time faculty of graduate library schools accredited by the American Library Association (ALA). The work milieu with its stresses, system of rewards, and occupational norms and conflicts will also be investigated. A number of typologies will be constructed of subgroups identified by such factors as years of teaching experience and institution-orientation versus professional-orientation (cosmopolitans versus locals). Since the primary focus of the study is exploratory, it is expected that a number of testable hypotheses will be generated for future research. Descriptive questionnaires will be mailed to the 340 full-time faculty of the ALA-accredited library schools. From the analysis of the data of the returns, a 10 percent stratified sample of the total population will be selected for semistructured indepth interviews. The interviewers will review the free-choice items of the questionnaire and collect additional data on attitudes, aspirations, present work situations, and general outlook of incumbents. Data will be transcribed to punch cards and manipulated by data processing equipment to construct typologies of various subgroups. The investigator will also explore and test selected assumptions about teachers of librarianship based on existing relevant research in librarianship and studies of other occupations in higher education.

466. EP010856

$14,991

LIBRARY AUTOMATION—A CRITICAL REVIEW

Investigator—Overmyer, Lavahn

Case Western Reserve Univ., Cleveland, Ohio

Bureau Number—BR-7-1268 Proposal date—67

Library and Information Sciences Research Branch, DITD

Ohio Congressional District Number 22

Grant—OEG-1-7-071268-5079

FY67—$14,991

Descriptors—Administrator Guides, Automation, Bibliographies, Guidelines, Library Facilities, Library Science, Library Services, Technological Advancement

Start date 29 Jun 67 End date 28 Apr 69

A handbook will be prepared to assist library administrators who are considering the use of automation in their library systems. The handbook will include a critical review of the literature of library automation. To provide materials for both the handbook and the critical review, a 5-month period will be devoted to the collection of data. Information will be gathered from literature and at selected locations, and analyzed to determine (1) what library automation has done to the overall library system in terms of service, efficiency, staff morale, staff assignments, and costs, (2) what the reaction of the user-community served has been, (3) how well user needs have been met, and (4) what the plans of the library are for the future.

467. EP010925

$489,592

A STUDY OF THE ORGANIZATION AND SEARCH OF BIBLIOGRAPHIC HOLDINGS RECORDS IN ON-LINE COMPUTER SYSTEMS

Investigator—Maron, M. E.

California Univ., Berkeley

Bureau Number—BR-7-1083 Proposal date—67

Responsible BR.—Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DITD

California Congressional District Number 7

Contract—OEC-1-7-071083-5068

FY67—$179,719; FY68—$309,873

Descriptors—Computer Oriented Programs, Data Collection, Data Processing, Information Retrieval, Information Systems, Libraries; Library Facilities

Start Date 15 Jun 67 End Date 30 Jul 70

This study on computer-based library systems will focus upon the organization and search of large random access files with terminal-controlled interrogation, as they apply to the handling of bibliographic holdings records. A machine-form data base of significant size (200,000) composed of Roman alphabet materials of general usefulness to the research library will be used. The first part of this study will involve the development of the data base using both existing machine-form records and original input. In the second part, organization and search techniques in an on-line system will be developed and implemented. Initial results of the study, reports, machine-form records, programs, and other materials of the preliminary study will be made generally available, and a consultant advisory panel will be established to review the project plans in relation to programs at other institutions.

468. EP010934

$25,077

AN EVALUATION OF THE UTILITY AND COST OF COMPUTERIZED LIBRARY CATALOGS

Investigator—Resnikoff, H. L., Dolby, J. L.

R and D Consultants Co., Los Altos, Calif.

Bureau Number—BR-7-1182 Proposal date—Apr 67

Library and Information Sciences Res. Branch, DITD

California Congressional District No. 10

Contract—OEC-1-7-071182-5013

FY67—$25,077

Descriptors—Cataloging, Computer Oriented Programs, Libraries, Program Costs, Feasibility, Studies, Program Evaluation, Information Processing, Data Collection, Data Analysis, Catalogs, Directories, Printing, Linguistic Patterns

Start date 30 Jun 67 End date 29 Jun 68

A utility and cost study of computerized library catalogs will be conducted to collect detailed information about cost factors and to determine areas that require more elaborate studies. A computerized catalog has two major advantages—(1) it permits the production of printed catalogs on a periodic basis at cost levels not achievable by other means, and (2) it permits the production of more variations of the standard listings by author, title, and subject than are otherwise possible. At the same time the computerized catalog raises questions, particularly of cost, that will be investigated in this study. Information gathering will be done in two phases—(1) by visits to major library centers that represent various problems and viewpoints on the use of computers in libraries, and (2) by a study of existing printed library and commercial catalogs and directories. In phase 1 information on special purpose bibliographies will be gathered to determine (1) to what extent computer listings could have been used to produce these special bibliographies, (2) size of potential market for special bibliographies, (3) feasibility of letting production of bibliographies carry part of the costs of a computerized catalog, and (4) what modifications to card catalogs would be needed to simplify generation of catalogs. In phase 2, the speed of scanning a file by a user, which is connected with costs, will be determined as a function of type size, type face, and page and entry formats. Additional factors to be studied are conversion costs, costs of computer programing and ways of reducing them, and the feasibility of interinstitutional use of computer programs.

469. EP010937

$431,000

ACQUISITION OF KNOWLEDGE IN RELATION TO INFORMATION, STORAGE AND RETRIEVAL

Investigator—Chien, Robert T.; Von Foerster, Heinz

Illinois Univ., Urbana

Bureau Number—BR-7-1213 Proposal date—25 May 67

Division of Information Technology and Dissemination, B.R. Library and Information Sciences Research Branch, DITD

Illinois Congressional District Number 22

Contract—OEC-1-7-071213-4557

FY67—$250,000; FY69—$181,000

Descriptors—Cognitive Processes, Computational Linguistics, Computers, Conceptual Schemes, Information Retrieval, Instructional Technology, Learning Theories, Systems Development

Start date 22 Jun 67 End date 31 Aug 70

An interdisciplinary approach will be used to develop the conceptual and theoretical foundations and organization of computer information storage and retrieval systems that will permit symbolic discourse in the form of natural language between man and machine. Computer software and hardware will be organized and developed to demonstrate the superiority of such systems, called cognitive memory systems, over conventional information storage and retrieval systems which deliver documents upon coded queries. For this study, the concepts of "what information storage and retrieval systems should be" will be based upon considering knowledge to be a set of relations, not necessarily represented in linguistic form, to which appropriate access is obtained by appropriate transformations into the linguistic domain. This approach considers the ultimate aim in information systems to be the use of knowledge through discourse by use of natural language in a man-machine system in which each partner is entitled to pose problems to the other partner who may solve them by recourse to deductive or inductive reasoning. Researchers from the departments of computer sciences, mathematics, linguistics, library science, anthropology, psychology, electrical engineering, biophysics, and the biological computer laboratory will contribute and cooperate in this project on a formal or informal basis. The results of this study will be important as a fundamental re-thinking of the information storage and retrieval problem in terms of operable cognitive memory systems and for the contributions made to subject areas and to teaching methods.

470. EP011310

$104,480

DEVELOPMENT OF A COMPUTER-BASED LABORATORY PROGRAM FOR LIBRARY SCIENCE STUDENTS USING L.C./MARC TAPES

Investigator—Atherton, Pauline

Syracuse University, New York

Bureau Number—BR–8–0664 Proposal date—26 Mar 68

Library and Information Sciences Research Branch, DITD

New York Congressional District No. 34

Grant—OEG–0–080664–4400

FY68—$104,480

Descriptors—Computer-Based Laboratories, Library Science, Information Retrieval, Information Processing, Cataloging, Library of Congress

Start date 24 Jun 68 End date 23 Dec 69

Development of a computer-based laboratory program for library science students using the Library of Congress' MARC (Machine-Readable Cataloging) magnetic tapes will enable the students (1) to search and retrieve catalog records for current literature, (2) to process their own cataloging assignments, and (3) to examine the characteristics of the Library of Congress cataloging. After a 6-month implementation phase, the laboratory will be operated on an experimental basis for a 1-year period after which time an evaluation of the results will be conducted. If proven successful, the entire laboratory will be made available to other library schools.

471. EP011371

$14,980

A STUDY OF THE COST OF MAINTAINING AND UPDATING LIBRARY CARD CATALOGS

Investigator—Dolby, James L.

R and D Consultants Co., Los Altos, Calif.

Bureau Number—BR–8–0292 Proposal date—06 Dec 67

Library and Information Sciences Research Branch, DITD

California Congressional District Number 10

Contract—OEC–9–8–080292–0107

FY68—$14,980

Descriptors—Book Catalogs, Catalogs, Comparative Statistics, Computers, Computer Science, Cost Effectiveness, Costs, Library Expenditures, Library Reference Services, Library Research

Start date 28 Jun 68 End date 27 Jun 69

The cost of maintaining and updating library card catalogs will be investigated. The study will be aimed at collecting information from a number of different types and sizes of libraries and allocating costs to parts of the operation. Particular attention will be given the cost of detecting and correcting errors as opposed to the costs of not correcting the errors. A careful analysis will be made of the cost of using the catalog (including the cost of librarian's use). Cost factors will be compared with findings obtained from an evaluation (now in progress) of the cost and utility of computerized library catalogs. Cost and usage studies will be based on library visitations, tests of random samples of library holdings, and published studies of catalog operations.

472. EP011487

$135,000

A COMPUTER-AIDED STUDY OF ACCESS MANAGEMENT AND COLLECTION MANAGEMENT IN LIBRARIES

Investigator—Dolby, James L.; and others

R and D Consultants Co., Los Altos, Calif.

Bureau Number—BR–8–0548 Proposal date—1 Feb 68

Library and Information Sciences Research Branch, DITD

California Congressional District Number 10

Contract—OEC–0–9–140548–2791

FY69—$135,000

Descriptors—Book Catalogs, Computer Programs, Librarians, Library Circulation, Library Collections, Management

Start date 15 Feb 69 End date 15 Feb 72

The use of computer technology in management of library holdings and management of the library catalog will be investigated. The three objectives of this investigation are: (1) provide an integrated approach to the catalog access problem by building a model of the access system to determine need for expanded access points, (2) determine ways whereby the manager of library holdings can make use of the catalog and circulation information to adjust acquisitions programs to user needs, and (3) identify and solve technical problems in manipulating the base information to improve speed and quality of catalog access at reasonable cost and provide needed information for the library collection manager. Several major library collections in machine-readable form will be analyzed.

473. EP011488

$68,045

THE DEVELOPMENT AND TESTING OF MATERIALS FOR COMPUTER-ASSISTED INSTRUCTION IN THE EDUCATION OF REFERENCE LIBRARIANS

Investigator—Slavens, Thomas P.; and others

Michigan Univ., Ann Arbor

Bureau Number—BR–8–0560 Proposal date—Feb 68

Division of Information Technology and Dissemination, B. R. Library and Information Sciences Research Branch, DITD

Michigan Congressional District Number 2

FY69—$68,045

Descriptors—Computer-Assisted Instruction, Librarians, Library Education, Library Reference Services, Library Schools

Start date 1 May 69 End date 30 Apr 70

Four problem areas in library science concerning the education of reference librarians namely, (1) acute faculty shortage, (2) unsatisfactory teaching methods, (3) education and skill variation among students, and (4) lack of self-instructional materials, will be investigated. Computer-assisted instructional materials will be developed and tested. Self-instruction and problem simulation will enable students to become engaged in decisionmaking on library policies and in answering questions as well as in choosing realistic sources for the solution of reference problems. This technique could be utilized by other institutions for education in graduate programs in library science.

474. EP011557

$9,877

THE AMENABILITY OF A CATALOGING PROCESS TO SIMULATION BY AUTOMATIC TECHNIQUES

Investigator—Fox, Ann M.

University of Illinois

Urbana, Illinois

Start date 01 Feb 69 End date 31 May 70

This project planned to determine whether the human intellectual process of cataloging bibliographic materials can be simulated by automatic techniques. The specific cataloging process for study was that which concerns selection of entry. Simulating the process by automatic techniques refers specifically to the use of mechanistic devices and procedures that will facilitate automatic manipulation of cataloging data to produce proper entry selection. Devices to be used in this study to simulate the entry process were to be directed tree graphs, which are commonly used in linguistic and concept simulation. The study was to be addressed primarily to conceptual problems that are at the base of the cataloging process, and was to be concerned with economic or technical feasibility.

475. EP011645

$17,420

OVERVIEW OF THE LIBRARY FELLOWSHIP PROGRAM

Investigator—Sharp, Laure M.

Bureau of Social Science Research, Inc., Washington, D.C.

Bureau Number—BR–9–0268 Proposal dates—10 Jan 69

Division of Information Technology and Dissemination, B. R. Library and Information Sciences Research Branch, DITD

District of Columbia

FY69–$17,420

Descriptors—Fellowships, Librarians; Library Education, Library Schools, Library Science, Questionnaires, Research Surveys

Start date 16 Jun 69 End date 15 Mar 70

This project will examine the fellowship program in librarianship suupported under Title II B of the Higher Education Act. The research will attempt to develop information on the procedures used by institutions in awarding fellowships, the pool of applications from which the awards are made, and the program effects on the early careers of the fellows. Data will be collected for this initial, limited study through mail questionnaires to the deans of the fifty-odd institutions participating in the program. Extensive follow-up procedures will be used through subsequent mailings and telephone calls in order to obtain as complete a set of returns as possible. The questionnaire will contain items related to each institution's program as a whole—such as the application procedure, the total number of the applicants, the criteria of selection, the potential for program expansion, etc. Data will also be collected on each awardee (an overall total of about 2,000), concerning such matters as his current status within the program (if not yet graduated), and his past and current occupational experience. Whenever possible, questions used in earlier follow-up studies of fellowship recipients in other fields of study will be replicated so as to provide comparability. The completed questionnaires will be coded and processed by electronic data processing equipment and the results presented in an analytic report. The study is expected to contribute to the assessment of the effectiveness of a federally sponsored educational program and provide base-line data for follow-up studies.

476. EP011690

$68,780

CONSTRUCTION OF A DECISION-MAKING MODEL FOR LIBRARY NETWORK IMPLEMENTATION IN WASHINGTON STATE

Maryan E. Reynolds

Washington State Library, Olympia, Washington

Start date 15 Jun 67 End date 31 Oct 70

A research team comprised of members of the faculty at the University of Washington and staff and technical consultants of the Washington State Library planned to analyze the current and future information needs and resources of Washington State. They were, with the aid of cost-benefit analysis, to formulate benefit strategies for statewide library network implementation, and correlate these strategies in providing a decisionmaking model for use by the State's title III (L.S.C.A.) Advisory Council and State Library Commission.

Particular attention was to be focused on hardware and software requirements of the network, inventory and distribution patterns, and administrative policies.

477. EP011713

$97,180

DEVELOPMENT OF A MACHINE-FORM UNION CATALOG FOR THE NEW ENGLAND LIBRARY INFORMATION NETWORK (NELINET)

Investigator—Goldstein, Samuel; and others

New England Board of Higher Education, Wellesley, Mass.

Bureau Number—BR–9–0404 Proposal date—10 Mar 69

Library and Information Sciences Research Branch, DITD

Massachusetts Congressional District Number 10

Grant—OEG–0–9–310404–4438

FY69—$97,180

Descriptors—Automation, Booklists, Computer Storage Devices, Information Dissemination, Information Storage, Union Catalogs

Start date 15 Jun 69 End date 15 Mar 70

The purpose is to develop the essential capabilities for a machine form union catalog of books and a book form union catalog of books that will be available to and usable by the college, university, and public librarians of New England. Three main activities will be performed in the development of the machine form union catalog subsystem: (a) a study of regional machine form union catalog characteristics, (b) the systems design and programing for machine form union catalog file creation, and (c) the programing for a book form union catalog of books based on the Library of Congress card number. Subsequent access to a regional machine form union catalog of books, and/or to book form catalogs derivable from such a catalog, will be of great value to scholars, students, and librarians in New England. The eventual capacity of such a catalog for library management and cooperative acquisitions policies will be an additional value of high importance.

478. EP011751

$4,540

DESIGN AND TESTING OF A COMPUTERIZED METHOD OF HANDLING LIBRARY PERIODICALS

Investigator—Burns, Robert, Jr.

Colorado State Univ., Ft. Collins.

Bureau Number—BR-9-H-022
Regional Research Program, OAC
Colorado Congressional District Number 4
Grant—OEG-8-9-150022-2022
FY69—$4,540
Descriptors—Automation, Library Acquisition, Library Collections, Periodicals
Start date 15 Jun 69 End date 31 Dec 70

This project will develop an algorithm which will enable librarians to express mathematically the arrival pattern for each periodical having a predictable arrival pattern, i.e. with a predictable number of days between each receipt of an issue. Built into this algorithm will be a technique for grouping bibliographic units (parts, issues, numbers, fascicules) into the next higher level serial unit (Volumes, Band, Tome, etc.) by an automatic increment in much the same way that an odometer indicates mileage.

479. EP011820

$8,940

NORTH AMERICAN LIBRARY AND INFORMATION SCIENCE EDUCATION DIRECTORY AND STATISTICS, 1968/70

Investigator—Schick, Frank L.; and others
Wisconsin Univ., Milwaukee
Bureau Number—BR-9-8017
Library and Information Sciences Research Branch, DITD
Wisconsin Congressional District Number 5
Grant—OEG-5-9-598017-0051
FY69—$8,940
Descriptors—Directories, Information Science, Library Associations, Library Networks, Library Research, Library Science, Statistical Data, Statistical Surveys
Start date 21 Apr 69 End date 31 Dec 70

The purpose of this project is to conduct a complete universe statistical survey of library and information science programs in the United States, Canada and Mexico for 1968/9 projected to 1969/70, and to compare the results with the previous study which was published under the title "North American Library Education Directory & Statistics, 1968/9" by the American Library Association (ALA) in July 1968. This study will provide additional data about the support of library and information science programs by Federal resources. The project procedures will include: (1) mailout and two followups to universe group of about 500, (2) construction, revision and refinement of the survey instruments, (3) editing of responses and tabulation of data, (4) preparation of explanatory and interpretative text to accompany computer produced tables, (5) editorial work relevant to publication, (6) publication of survey and dissemination of ALA. The expected contribution will be to supply relevant data for those concerned with professional library manpower developments, employers of librarians on the Federal, State, local and institutional levels, administrators of library schools and those administering library and information science related grant programs.

480. EP012108

$200,000

CONVERSION OF NON-CURRENT CATALOG MATERIAL TO MACHINE-READABLE FORM

Investigator—Avram, Henriette D.
Library of Congress, Washington, D.C.
Bureau Number—BR-0-0241
Division of Information Technology and Dissemination, Library and Information Sciences Research Branch
District of Columbia
FY70—$200,000
Descriptors—Automation, Cataloging, Information Dissemination, Information Processing, Information Storage, Information Systems, Library Research, Pilot Projects, Union Catalogs, MARC Distribution Service; Project RECON
Start date 1 Jan 70 End date 31 Aug 71

The Retrospective Conversion Pilot Project (RECON) of the Library of Congress is concerned with the conversion and distribution of an estimated 85,000 English language titles. This initial conversion is to be limited to English language monographs cataloged from 1960 until now and converted into machine readable form in reverse chronological order. In order to explore the problems encountered in encoding and converting cataloging records for older English language monographs and monographs in other Roman alphabet languages, 5,000 additional titles will be selected and converted. The Library further intends to investigate the use of a format recognition technique for the purpose of reducing human editing of cataloging records. The use of this technique will

have significant impact on future Library of Congress conversion activity. RECON will experiment with several methods of microfilming and producing hard copy from the Library record set. Monitoring of Direct-Read Optical Character Recognition devices suitable for large scale conversion will be continued. Testing a variety of input devices will be inaugurated. RECON implements the recommendation to test empirically the techniques suggested in the final report entitled "Conversion of Retrospective Catalog Records to Machine-Readable Form; A Study of the Feasibility of a National Bibliographic Service."

481. EP012153

$8,324

AN INVESTIGATION OF MORE EFFECTIVE MEANS OF ORGANIZATION AND UTILIZATION OF THE NASHVILLE UNION CATALOG

Investigator—Gleaves, Edwin S.

George Peabody Coll. for Teachers, Nashville, Tenn.

Bureau Number—BR-0-D-032

Regional Research Program, OAC

Tennessee Congressional District Number 5

FY70—$8,324

Descriptors—Cataloging, Computer Oriented Programs, Information Dissemination, Information Retrieval, Information Utilization, Interlibrary Loans, Library Services, Union Catalogs

Start date 1 Mar 70 End date 1 Mar 71

The purpose of this research project is to investigate the problems and possibilities involved in the development of an efficient Nashville Area Union Catalog based on an existing smaller union catalog. The inclusion of a number of new members would increase the catalog to nearly 3 million volumes, necessitating a totally new approach to efficient information retrieval from it and service based on it. Drawing upon previous work on computerized catalogs, and profiting from the Computer Center facilities of the Kennedy Center for Research at George Peabody College, an attempt will be made to develop both an efficient format for the union catalog and a workable contractual agreement among participating members as a basis for rapid service to scholars and students in this area. This new approach should be a contribution to the field of library cooperation and, hopefully, may serve as a model for other regions to follow in providing efficient bibliographical and interlibrary loan services through one bibliographical center.

482. EP012174

$171,402

STUDY AND DEVELOPMENT OF AUTOMATED INSTRUCTIONAL MATERIALS-HANDLING PROGRAM

Investigator—Frary, Mildred; and others

Los Angeles Unified School District, Calif.

Bureau Number—BR-9-0225

Library and Information Sciences Research Branch, DITD

California Congressional District Number 29

Grant—OEG-9-70-0021

FY70—$171,402

Descriptors—Automation, Instructional Materials, Instructional Materials Centers, Resource Centers, Systems Analysis, Systems Development

Start date 16 Mar 70 End date 15 Mar 71

The Los Angeles City Unified School District has identified the need for more efficient means of managing, evaluating, and using instructional materials. The District will soon face severe limitations on the essential services it can provide to students and teachers, because of the anticipated volume of these materials and the detailed information necessary for their management. The District proposes to undertake a one-year study, to identify current procedures, future needs, and problem areas, and to design a system that would apply advanced technology to satisfy the projected requirements for a materials-handling program. The project would serve as a pilot study whose results could be used by other districts in California for their holdings of materials. The resulting system design could also serve as a model for other Great Cities and school districts across the country who face similar problems. This proposal outlines eight tasks that will culminate in a detailed system design and a set of implementation and cost schedules.

483.

$74,044

STUDY OF THE DEVELOPMENT AND PRESENT STATUS OF AUTOMATED TECHNIQUES AND PROCEDURES IN FEDERAL LIBRARIES AND DOCUMENTATION CENTERS

Investigator—John A. Albertini

Information Dynamics Corporation, Bethesda, Maryland

Start date 15 Jun 68 End date 15 Jan 69

It has been suggested that trends in the application of computers and other automatic equipment

in library systems are the result of both administrative policies and constraints and technical considerations. Therefore, the study planned to include a series of interviews (approximately 48 in number) with both selected agency administrators above the library management level, and library managers and technical personnel. By means of a classification scheme to be developed, whereby the agencies are characterized in an operation sense, a factor model is to be developed that permits a statistical sampling of libraries and information centers within the agencies. The study will then provide a factor analysis that will relate administrative and technical factors.

484.

$119,800

CONDUCT AN ANALYSIS OF AUTOMATED FEDERAL LIBRARY PROGRAMS TO THE PURPOSE OF ESTABLISHING FEASIBILITY CRITERIA AND AS A BASIS FOR DEVELOPMENT OF A GENERALIZED AUTOMATED SYSTEMS DESIGN

Investigator—Barbara Markuson

System Development Corporation, Santa Monica, California

This study will be the third in a series of four related efforts sponsored by the Federal Library Committee. Previous studies sought to examine the trends toward library automation and analyze the patterns of automation and identify factors that have a high probability of influencing automated library systems for Federal libraries and information centers.

The research study is designed to: (1) determine which functions of Federal libraries are susceptible to automation, (2) describe current technology applicable or potentially applicable to these functions, (3) survey the status of automation in Federal libraries, and (4) establish criteria and guidelines for determining what Federal library functions should be automated and how much automation should be carried out.

The study should not only provide a sound basis for improving the operations of Federal libraries but should also be of value to the broad library and information services community.

485.

$90,135

DEVELOPMENT OF A COMPUTERIZED REGIONAL SHARED-CATALOGING SYSTEM

Investigator—Frederick G. Kilgour

Ohio College Library Center, Columbus, Ohio

Start date 01 Jan 70 End date 30 Jun 71

The objective of this research and development project is to increase educational and research resources to academic institutions. To attain this objective, a computerized shared-cataloging system is being designed and activated for Ohio academic libraries. However, the system will be a stand-alone system designed to operate with a group of any type of libraries. Moreover, the system is being designed to achieve transferability so that a similar computer and related equipment, the programs, and the cataloging data could be installed in another region.

The shared-cataloging system is intended to increase availability of library resources for research and education, reduce costly duplicate cataloging, and reduce user costs in time and money. The shared-cataloging system is being designed to serve as a base on which subsequently to build a computerized remote catalog access and circulation system, a bibliographic-information retrieval system, a serials control system, and a technical processing system. This initial project will continue for eighteen months, at the end of which time it is planned to activate a pilot operation for six months before undertaking routine operation.

Library Services and Construction Act—Title III

486.
$148,871
Statewide Union List of Serials
State—Indiana
FY70
Project Number 111–68–1
Start date 01 Jul 68

Encourage such cooperative projects as centralized purchasing and processing, computerized operations, State and regional communications systems, regional special collections, and other library functions that can be more effectively and economically administered through joint effort, including interstate projects. The Union List of Serials project contributes to the attainment of this goal because it is a cooperative computerized operation which will bring together in one document the serial holdings of prominent libraries of all classes; will represent at least 95% of all serials in the State; will promote and encourage a sound working relationship among all types of libraries.

487.
$11,500
NEW MEXICO STATE LIBRARY
Santa Fe, New Mexico 87501
Mr. C. Edwin Dowlin, State Librarian
FY69—$11,500

Printing of book of Southwestern Union List of Serials. 800–900 titles entered into series form by computer. Funds matched by State funds.

No abstract available.

488.
$90,877
MARC-OKLAHOMA: OKLAHOMA DEPT OF LIBRARIES
109 State Capitol, Oklahoma City 73105

The overall goal in the MARC-Oklahoma program is to maintain and operate a data utility of machine readable cataloging information with a variety of services for the Department of Libraries and for other libraries. The overriding philosophy for the data utility for the Department is the recognition that automation is increasingly necessary to help the Department keep pace with and increase the services which it offers to its patron groups. The philosophy for making automated services available to other libraries is the realization that such an expensive operation should be used cooperatively.

"The term 'data utility' is used to describe a data-oriented, computer-based centralized service, with emphasis toward generalized applications on a centrally maintained set of data files for access by a variety of users. This concept differs significantly from a computer utility . . . which allows many users at remote sites to use a central computer concurrently. The data utility is similar in that certain services will be available at remote sites, but all take the form of interrogating existing files with existing software."

489.
$42,526
STATEWIDE LIBRARY NETWORK
Olympia, Wash. 98501

The program plan, as adopted by the State Library Commission, calls for the development of an integrated library network in the State of Washington. The intent of the program is three-fold:

(1) To promote the increased sharing of resources by different kinds of libraries;

(2) To use modern technology in an appropriate, economic manner and by doing so, to facilitate the sharing of resources;

(3) To expand the availability of library materials to every resident of the State.

490. EP000157

$237,411

THE DEVELOPMENT OF A BEGINNING READING SKILLS PROGRAM USING THE EDISON RESPONSIVE ENVIRONMENT INSTRUMENT

Investigator—Gotkin, Lassar G.

New York Univ., N.Y.

Bureau Number—BR–5–0749 Proposal date—15 Dec 64

Instructional Materials and Practices Branch, DESR

New York Congressional District Number 17

Contract—OEC–5–85–013

FY65—$110,634; FY67—$56,077; FY—$70,700

Descriptors—Autoinstructional Methods, Beginning Reading, Grade 1, Reading Development, Reading Instruction, Reading Skills, Socially Disadvantaged, Special Education Edison Responsive Environment Instrument

Start date 01 May 65 End date 30 Apr 68

A lesson series will be prepared for teaching basic visual, auditory, and conceptual skills to beginning readers, and for particular application to the socially disadvantaged child. The "Edison Responsive Environment Instrument," an automated typewriter will be used in the development activities. The series will be developed using individual learners, and will be continually revised as each learning sequence is written and tested. The final form of the lesson series will be tested in two experimental and two control conditions. The experimental conditions will consist of one group of children receiving instruction entirely on the Edison Responsive Environment Instrument, and another group receiving teacher-instruction and machine-instruction combined. The control conditions will consist of one group receiving reading instruction entirely by the teacher, and another group receiving no reading instruction of any kind. Experimental and control groups will be compared at the end of the lesson sequence and at the end of the first grade by means of alphabet tests, auditory tests, and a reading prognosis test.

491. EP000488

$954,211

EXPERIMENTATION WITH COMPUTER-ASSISTED INSTRUCTION IN TECHNICAL EDUCATION

Investigators—Brandon, George L.; Mitzel, Harold E.

Pennsylvania State Univ., University Park

Bureau Number—BR–5–0035 Proposal date—15 Mar 64

Instructional Materials and Practices Branch, DCVR

Pennsylvania State Univ. ,University Park

Contract—OEC–5–85–074

FY65—$165,080; FY66—$310,001; FY68—$206,000; FY69—$273,130

Descriptors—Computer-Assisted Instruction, Computers, Educational Programs, Educational Research, Evaluation, Programed Instruction, Vocational Education

Start date 1 Jun 65 End date 30 Jun 69

A 4-year research and development program will explore the use of experimental teaching strategies in computer-assisted instruction for technical education programs. The plan is (1) to evaluate the articulation of computer-assisted instruction with other educational strategies, and, by careful experimentation, determine optimum ways of presenting core courses in technical education curriculums, (2) to prepare curriculum materials for computer presentation with emphasis in the instruction of post-high school students in communication skills, technical mathematics and engineering science, (3) to train an interdisciplinary group of individuals to prepare course materials and to do research on computer applications in technical education, and (4) to disseminate the information and evidence concerning the innovation of computer-assisted instruction and its application to occupational education. The project would aid in relieving the severe shortage of trained research workers in occupational education and to communicate the innovation of computer-assisted instruction to the public and the professions.

492. EP010085

$643,479

FLEXIBILITY FOR VOCATIONAL EDUCATION THROUGH COMPUTER SCHEDULING

Investigator—Allen, Dwight W.

Stanford Univ., Calif., School of Education

Bureau Number—BR–6–2409 Proposal date—11 May 66

Organization and Admin. Studies Branch, DCVR

California Congressional District No. 9

Grant OEG–4–6–062409–1804

FY66—$353,524; FY68—$289,955

Descriptors—Curriculum, Scheduling, Vocational Education, Computer Programs, Course Organization

Start date 20 Jun 66 End date 30 Jun 68

The Stanford School Scheduling System (SSSS) will be applied to vocational-technical and comprehensive school curriculums. The two sets of schools will be characterized by geographic distribution, rural-suburban-urban area balance, variety of types of schools, grade organization, enrollment levels, and clientele served. A study of the relationship between general and vocational education, the development of performance criteria of achievement for all vocational areas, and a delineation of procedures to introduce minimal vocational experiences to schools lacking vocational programs will be conducted by each school faculty with assistance from the Stanford senior staff. Systematic data collection and analysis will determine which project goals have been realized. The economic feasibility of using SSSS as an enabling technology for vocational and technical education is anticipated.

493. EP010126

$153,960

CURRICULAR IMPLICATIONS OF AUTOMATED DATA PROCESSING FOR EDUCATIONAL INSTITUTIONS

Investigator—Bangs, F. Kendrick

Colorado Univ., Boulder, School of Business

Bureau Number—BR–5–0144 Proposal date—23 May 65

Instructional Materials and Practices Branch, DCVR

Colorado Congressional District No. 2

Contract—OEC–6–85–030

FY66—$153,960

Descriptors—Automation, Curriculum Enrichment, Data Processing, Educational Planning, Vocational Schools, Counseling Services, Industry, Statistical Surveys

Start date 01 Jan 66 End date 31 Mar 68

The main purpose is to provide guidance for schools in evaluating existing programs and for establishing new programs in integrated data processing. Information of potential value will be compiled for modification of existing and establishment of flexible, data processing curriculums in office occupation-oriented educational programs offering less than high school degrees. This information will also be of value to counselors in providing students with occupational information in the data processing field. A sample survey design utilizing interviews and questionnaires is planned. Questionnaires administered by interviewers will gather factual data about programs being offered in schools today and about employees' backgrounds and data processing in office work in industry. Implications for curriculum construction will be derived from a scrutiny of the course offerings of public secondary and post-secondary schools, vocational-technical schools, and public junior colleges which offer data processing courses (for less than a high school degree). These offerings will then be viewed in relation to the requirements of data processing departments of schools and the opinions expressed by personnel regarding data processing employers.

494. EP010143

$179,625

USE OF COMPUTER TECHNOLOGY IN VOCATIONAL COUNSELING

Investigator—Cogswell, John F.

System Development Corp., Santa Monica, Calif.

Bureau Number—BR–5–0141 Proposal date—29 May 65

Instructional Materials and Practices Branch, DCVR

California Congressional District No. 28

Contract—OEC–6–85–076

FY66—$179,625

Descriptors—Guidance Services, Information Processing, Information Retrieval, Vocational Counseling, Vocational Education, California, Computer Programs, Student Problems, Student Records

Start date 03 Dec 65 End date 31 Aug 67

The purpose is to study the application of modern information processing technology in vocational counseling under field conditions. Twelve vocational education installations, two State employment agencies, and one private and one municipal vocational guidance operation will be surveyed. A vocational education field site will be selected and the counseling procedures will be ana-

lyzed in detail. A system will be developed by a planning team consisting of the counselor at the field site, the researchers, and the consultants.

495. EP010157

$98,800

EXPERIMENTAL CURRICULUM FOR ELECTRO-MECHANICAL TECHNICIANS IN COMPUTER AND BUSINESS MACHINES TECHNOLOGY

Investigator—Fellows, Douglas M.

Hartford Univ., West Hartford, Conn.

Bureau Number—BR–6–1489 Proposal date—30 Mar 66

Instructional Materials and Practices Branch, DCVR

Connecticut Congressional District Number 1

Grant—OEG–1–6–061489–2022

FY66—$76,000; FY67—$15,800; FY68—$7,000

Descriptors—Computers, Curriculum Development, Curriculum Planning, Data Processing, Electromechanical Aids, Electronic Equipment, Experimental Curriculum, Teaching Programs

Start date 15 Jun 66 End date 15 Oct 69

This study proposes to develop course content and methodology, initiate a pilot curriculum, and evaluate the effectiveness of that curriculum in the field of electro-mechanical technology as applied to computers and business machines. An advisory committee will survey existing job titles and required competencies in the business machine industry, and a review of present curriculums in electro-mechanical technology will be made. Two phases of the study already concluded were the development of a curriculum and the provision of basic equipment. The third phase will cover the training of those who will teach the new curriculum. The fourth phase will concern itself with how the curriculum will be taught, followed by the final, evaluative phase.

496. EP010168

$223,387

THE DEVELOPMENT OF PREVOCATIONAL EDUCATION LITERACY COURSES FOR USE WITH COMPUTER-ASSISTED INSTRUCTION OF DISADVANTAGED YOUTHS AND ADULTS

Investigator—Smith, T.

Florida St. Univ., Tallahassee

Bureau Number—BR–6–1458

Instructional Materials and Practices Branch, DCVR

Florida Congressional District No. 9

Grant—OEG–2–6–001458–1540

FY66–$110,083. FY67–$113,304

Descriptors—Computer-Assisted Instruction, Computer Based Laboratories, Computer Oriented Programs, Computer Programs, Elementary School Students, Elementary Schools, Sequential Programs, Special Education, Special Programs

Start date 01 Jun 66 End date 01 Jun 68

The objectives are to prepare and empirically evaluate programed materials for computer-assisted instruction in reading and numerical skills needed prior to vocational instruction. A literacy training program of reading, writing, and numerical skills appropriate to grade levels two through seven will be developed using vocationally oriented materials. Each segment will be tested in trial sessions with selected functionally illiterate university employees. The final evaluation will involve a comparison of achievement between an experimental group receiving computer-assisted instruction and a control group taught by a classroom teacher using traditional methods. Outside consultants will also be asked to evaluate the program. Student evaluations of the content acceptability will be gathered using questionnaires and/or interviews.

497. EP010190

$99,316

MILITARY TRAINING TRANSFERABILITY STUDY

Investigator—Weinstein, Paul A.

Maryland Univ., College Park

Bureau Number—BR–6–2198 Proposal date—31 Jan 66

Career Opportunities Branch, DCVR

Maryland Congressional District Number 5

Grant—OEG–2–6–062198–155

FY66—$77,384; FY67—$21,932

Descriptors—Educational Research, Manpower Development, Research, Training, Transfer of Training, Vocational Education

Start date 15 Jun 66 End date 15 Dec 68

Factors related to vocational training provided for and by military and civilian sources will be compared. The comparisons will be used to test hypotheses concerning the nature, impact, application, and expressions of attitudes associated with military vocational training transferred to the civilian sector. A set of policy alternatives useful for national vocational education planning will be derived from the results. A nonrandom sample of occupations requiring formal and on-the-job military training will be selected from air force and army training programs for comparison with civilian techniques and developments. Existence as well as absence of the requirement for training will be

considered. The study will employ specially prepared computer programs to organize data collected for analysis and to seek out interrelated variable. Computerized correlation and multiple-regression analyses will also be accomplished.

498. EP010196

$141,108

A STUDY OF THE EFFECTIVENESS OF A MILITARY-TYPE COMPUTER-BASED INSTRUCTIONAL SYSTEM WHEN USED IN CIVILIAN HIGH SCHOOL COURSES IN ELECTRONICS AND AUTO MECHANICS

Investigator—Rozran, Gilbert B.

Systems Operation Support Inc., King of Prussia, Pa.

Bureau Number—BR–5–1332 Proposal date 25 Feb 65

Instructional Materials and Practices Branch, DCVR

Pennsylvania Congressional District No. 13

Grant–OEG–1–6–000242–0618

FY66—$141,108

Descriptors—Computer Oriented Programs, Industrial Arts, Programed Instruction, Research, Vocational Education, Auto Mechanics, Electronics, Media Research, Methods Research, Smart, SNAP

Start date 01 Apr 66 End date 31 Mar 67

Results attributable to computer-based programed instruction will be compared with results of currently planned electronics and auto mechanics instruction. SNAP, a programing technique based on cue-response analysis, will be used. The programs will be presented to selected subjects with an IQ range 130–78 with the Smart trainer, designed for military use. Selected students will be grouped in IQ levels from 100 to 130, and from 78 to 112. Basic course content will be identical for both the experimental and control group. Both groups will receive the same comprehensive end-of-course written and performance tests. Tests for significant differences will be made for each course. Then a multiple-regression analysis of student scores will be made on attitude, interest, and personality tests against final test scores.

499. EP010198

$189,811

A PRELIMINARY EVALUATION OF PRETECHNICAL PROGRAMS IN SECONDARY EDUCATION

Investigator—Kincaid, Harry V.

Stanford Research Inst., Menlo Park, Calif.

Bureau Number—BR–5–1337 Proposal date—12 Nov 65

Instructional Materials and Practices Branch, DCVR

California Congressional District No. 11

Grant—OEG–4–6–000431–0709

FY66—$148,751; FY68—$41,060

Descriptors—Administration, Educational Programs, Evaluation, Secondary Education, Pretechnology Programs, Program Evaluation

Start date 12 Apr 66 End date 31 Aug 68

Costs and effects of installing and operating a pretechnology secondary education program will be studied. Analyses of the results will be used to establish guidelines for installing subsequent pretechnology secondary education programs. A design for continued long-term evaluation of the pretechnology program concept will also be formulated. Study techniques will include personal interview, a pilot case study, intensive case studies of 10 schools which installed pretechnology programs, and a statistical study of matched pretechnology and academic students. Student comparisons will be made from analyses of existing disciplinary problems, extracurricular activities, post-school behavior, and attendance. An attempt will be made to develop information from historical studies of students similar to pretechnology students who had no opportunity to participate in the pretechnology program. Community, student, and educational system variables will be studied and computer analyzed to obtain an understanding of administrative problems associated with installation of a pretechnology program.

500. EP010206

$14,440

A STUDY OF THE EFFECTIVENESS OF FEDERALLY SUPPORTED BUSINESS DATA PROCESSING SUMMER INSTITUTES

Investigator—Wall, Lewis E.

Colorado State Univ., Ft. Collins, Coll. of Busin

Bureau Number—BR–6–2437 Proposal date—66

Instructional Materials and Practices Branch, DCVR

Colorado Congressional District No. 4

Grant—OEG–4–6–062437–2230

FY66—$14,440

Descriptors—Data Processing, Summer Programs, Teacher Education, Vocational Education, Computers, Institute Type Courses

Start date 20 Jun 66 End date 31 Aug 67

The objective of the institutes was to develop a pool of teachers for teaching specialized courses in a 2-year preparatory curriculum in business electronic data processing. These teachers would help alleviate a serious shortage that has developed in

this subject. A questionnaire will be sent to 30 post-high schools selected at random from the population of such schools who offer federally reimbursed 2-year business data processing courses. The questionnaire will include items designed to determine what the present program and staff characteristics are and items designed to determine anticipated program and staffing needs. Appropriate procedures will be used to obtain a complete return.

501. EP010509
$19,926
INSERVICE TRAINING IN COMPUTER-ASSISTED INSTRUCTION FOR VOCATIONAL TEACHERS
Investigator—McGregor, George
Providence Coll., R.I.
Bureau Number—BR–7–0175 Proposal date—12 Aug 66
Instructional Materials and Practices Branch, DCVR
Rhode Island Congressional District No. 2
Grant—OEG–1–7–070175–2642
FY67—$19,926
Descriptors—Computer-Assisted Instruction, Inservice Teacher Education, Program Planning, Programing, Vocational Education, Course Organization, Followup Studies
Start date 28 Dec 66 End date 30 Jun 67

Inservice training of high school vocational teachers in computer-assisted instruction will be continued. The 20 teachers in the program have been provided with basic training, and course writing techniques for converting individual lessons into proper format. They have written lessons and have begun to plan the content of a semester course in vocational training. This followon will provide training in writing individual lessons in a specific subject. Testing these lessons with a pilot group of students is also planned.

502. EP010672
$19,762
COMPUTER-AIDED TRAINING AND DESIGN —SUMMER INSTITUTE
Investigator—Morphonios, Alex. G.
Miami Dade Junior College, Florida
Bureau Number—BR–7–0435
Instructional Materials and Practices Branch, DCVR
Florida Congressional District No. 11
Grant No. OEG–2–7–07 0435–3135
FY67–$19,762
Descriptors—Automation, Computer-Assisted Instruction, Drafting, Industrial Arts, Institute Type Courses, Design Crafts, Educational Improvement, Summer Programs
Start date 14 Apr 67 End date 31 Aug 67

A summer institute training program in computer-aided drafting and design will be held to provide a basis for the participants to understand and use this recent development in automation. Computer programs which automate drafting, design computing, and control of machine tools will be presented, and laboratory projects will be employed to develop proficiency in equipment use and problem solving. The lectures and demonstrations will be presented by leaders in the field and will be designed to meet the specific needs of the participants.

503. EP010682
$35,000
SUMMER INSTITUTE TO TRAIN DATA PROCESSING TEACHERS FOR THE NEW OKLAHOMA STATE-WIDE COMPUTER SCIENCE SYSTEM, PHASE II
Investigator—Tuttle, Francis
Oklahoma State Board for Vocat. Educ., Stillwater
Bureau Number—BR–7–0822 Proposal date—13 Feb 67
Instructional Materials and Practices Branch, DCVR
Oklahoma Congressional District No. 4
Grant—OEG–1–7–070822–3486
FY67—$35,000
Descriptors—Computer Oriented Programs, Data Processing, Institute Type Courses, Teacher Education, Vocational Education, College Instruction, Electronic Equipment, High School Graduates, State Wide Computer Science System, Programing, Science Instruction, Scientific Methodology, Summer Programs, Training
Start date 15 Apr 67 End date 30 Jun 68

An 8-week institute to prepare post-high school data communications instructors for teaching a second-year curriculum in the Oklahoma statewide computer science system will be conducted during the summer of 1967. This "second-year" institute program (Phase II) will be a continuation of an institute held the preceding summer (Phase I) to teach first-year computer science technology. The present program will offer training for 20 participants in advanced levels of cost accounting and business organization, compiler languages, assembly language programing, executive systems data communications, and systems analysis and design. (These and other topics have been incorporated into the advanced curriculum of the Oklahoma computer science system, consisting of technical

computer science programs in four vocational-technical schools, three junior colleges, and one technical institute.)

504. EP010766

$1,802,765

AN INFORMATION SYSTEM FOR VOCATIONAL DECISIONS

Investigator—Tiedeman, David V.; and others

Harvard Univ., Cambridge, Mass.

Bureau Number BR–6–1819 Proposal date—15 Sep 65

Division of Comprehensive and Vocational Education, B.R. Basic Studies Branch, DCVR

Massachusetts Congressional District Number 8

Grant—OEG–1–6–061819–2240

FY66—$219,949; FY67—$415,000; FY68—$622,989; FY69—$544,827

Descriptors—Career Choice, Computers, Decisionmaking, Educational Programs, Information Systems; Interaction, Vocational Education

Start date 30 Jun 66 End date 31 Mar 70

The major objective of this project is to improve vocational decisionmaking through the use of a computer-based training program. The program is so designed that the student can relate knowledge about himself to data about education, training, and work, and can thereby obtain information on which he can base career decisions. The entire program links person, computer, and teacher or counselor in such a way that the student conducts a dialog with the computer, and the counselor assists in interpreting and evaluating the results. The project activities fall into three broad areas—(1) development of a computer-based data system for vocational decisionmaking, (2) development of a training program or course in vocational decisionmaking, and (3) study and assessment of the system, its users, and its use.

505. EP011021

$58,593

COORDINATION OF ORGANIC CURRICULUM DEVELOPMENT IN THE PUBLIC SCHOOLS OF SAN MATEO, CALIFORNIA

Investigator—Mink, Charles W.

San Mateo Union High School District, Calif.

Bureau Number—BR–8–0155 Proposal date—8 Sep 67

Instructional Materials and Practices Branch, DCVR

California Congressional District Number 11

Grant—OEG–0–8–080155–2666–085

FY68—$22,568; FY69—$36,025

Descriptors—Change Agents, Core Curriculum, Curriculum Development, Educational Change, Educational Innovation, Individualized Curriculum, Instructional Technology, Integrated Curriculum, Program Coordination, Public School Systems, Secondary Education, Self-Actualization, Systems Approach, Educational Systems for the Seventies, ES 70

Start date 15 Jan 68 End date 30 Jun 70

The San Mateo Union High School district in California will participate with 14 other public school districts and the U.S. Office of Education in planning and developing an organic curriculum for the secondary school. The twofold attempt will be to (1) integrate academic training, occupational training, and personal development in grades 9–12, and (2) assimilate knowledge in various areas of research in order to maximize individualized instruction. The new curriculum will be specifically oriented toward the learner's self-actualization and will provide a systematic approach for using such innovations as instructional television, team teaching, tutorial programs, teaching machines, and the computer in educational experiences of secondary school students. The curriculum should, therefore, provide the means for meeting perennial educational challenges brought about by technology and innovation. A local program coordinator will be employed by the school district to fulfill such objectives as establishing a climate for change, acting as a change agent, and evaluating each step in the curriculum development cycle, in addition to the development itself. This coordinator will work in conjunction with the efforts of the 14 other participating school districts, which will each employ its own program coordinator.

506. EP011096

$212,666

A COMPUTER-BASED VOCATIONAL GUIDANCE SYSTEM

Investigator—Flanagan, John C.

American Inst. for Research in Behavioral Sciences, Pittsburgh, Pa.

Bureau Number—BR–7–0109 Proposal date—26 Jul 66

Basic Studies Branch, DCVR

Pennsylvania Congressional District Number 14

Grant—OEG–0–8–070109–3530

FY68—$90,000; FY69—$122,666

Descriptors—Computer Oriented Programs, Computer Programs, Grade 9, Guidance Counseling, Junior High School Students, Secondary School Counselors, Secondary School Students, Vocational Counseling

Start date 1 Apr 68 End date 1 Nov 70

A computer-based vocational guidance system will be developed and tested on groups of ninth-grade students. The computer system will integrate measures of student abilities, aptitudes, and interests with guidance learning units developed for project talent. Guidance learning units relevant to the full range of vocations will be identified and cataloged for computer retrieval, and computer programs (based on project talent data) will be developed to retrieve and display experiences of various kinds of students for each vocation. Project talent test profiles will then be obtained for the participating students and used as a basis for displaying the experience of similar students in various vocations and for suggesting relevant guidance learning units. Comparisons of students receiving computer-based guidance with control groups will enable evaluation of the system.

507. EP011236

$96,867

IMPLEMENTATION OF VOCATIONAL COUNSELING SYSTEM

Investigator—Estavan, Donald P.; Silberman, Harry F.

System Development Corp., Santa Monica, Calif.

Bureau Number—BR–7–1229 Proposal date—21 Mar 68

Basic Studies Branch, DCVR

California Congressional District Number 28

Grant—OEG–9–8–071229–0122

FY68—$96,867

Descriptors—Computer Oriented Programs, Counselor Training, Evaluation, Group Counseling, Guidance Counseling, High School Students, Innovation, Junior High School Students, Occupational Information, Vocational Counseling

Start date 18 Jun 68 End date 18 Mar 69

Phase 2 of an exploratory study of information processing procedures and computer technology in vocational counseling will be performed. Phase 2 will be concerned with the implementation and evaluation of the computer-based counseling system established in a large junior high school and a senior high school. Computer programs are to be developed for use with time-sharing systems (Q-32 and IBM 360/65). A special user language will be developed permitting counselors to adapt their retrieval and input commands to their own personal styles. Interactive input/output terminals are to be installed in both schools where counselors will be trained to use the system and in group counseling techniques. For evaluation purposes data now being collected will be used. These data relate to counselor and student attitudes, the allocation of time for counseling, student dropout rate, and student attitudes toward vocational development. Analysis of the data will be focused on defining and describing the changes and directions of change in related system variables. The final report will be written to serve as a manual useful for developing man-machine counseling systems. An attempt will be made to include the phase 1 report as a monograph in the final report.

508. EP011658

$22,741

INVITATIONAL CONFERENCE ON COMPUTER-ASSISTED GUIDANCE SYSTEMS AND THEIR IMPLICATIONS FOR COUNSELING PRACTICE AND EDUCATION

Investigator—Tiedeman, David V.; Baruch, Rhoda

Harvard Univ., Cambridge, Mass.

Bureau Number—BR–9–0428 Proposal date—4 Mar 69

Basic Studies Branch, DCVR

Massachusetts Congressional District Number 8

Grant—OEG–0–9–310428–3727

FY69—$22,741

Descriptors—Computer Oriented Programs, Computer Programs, Conferences, Counseling, Counseling Effectiveness, Educational Counseling, Guidance, Guidance Counseling

Start date 1 May 69 End date 31 Oct 69

The objective of the invitational conference is to lay foundation for the working counselor's understanding, acceptance, and unbiased trial of the rapidly developing computer-based systems for counseling and guidance services. With more than a dozen such systems under development, it is obvious that several of them will be in use—on a trial basis—where counseling services are rendered in the near future particularly in conjunction with Educational Systems 1970 school systems. Because of the potential sources of counselor resistance inherent in the use of the computer in counseling, there is an urgent need to communicate what is known about the systems being developed, the motives that guide the development, and the problems and possibilities arising from their use. Seventeen guidance directors from ES '70 school systems and 23 university faculty members, who are in a position to influence the counseling practice and education at their institutions will be invited for a week long conference. The conference will have two main emphases: (1) expert presentations, group discussions and individual study on important issues concerning the use of computers in

counseling; and (2) detailed and prolonged study of three such systems, including the equipment, the programs, and the client-experiences being striven for. Participation in the conference should provide innovative guidance directors and counselor educators with: (a) a thorough knowledge of two of the computer-based systems; (b) a consideration of their adaptation and use in ES '70 schools; (c) an exposure to and an opportunity to discuss the relevant issues surrounding the use of the computer in counseling; (d) a bibliography and other source material dealing with these issues; and (e) an opportunity to consider the implications for counseling practice and education. It is expected that the direct effects of this experience will include: (a) the adaptation of some parts of the system for use in ES '70 schools; (b) the introduction of the subject to counselor education curriculums; (c) increased awareness of published materials and convention programs dealing with the topic; and (d) a general spread to counselors of information about computer-based systems.

Mental Retardation Facilities and Construction Act

509. EP000316
$69,540
COMPUTER TRANSLATION, GRADE TWO BRAILLE FROM PRINT
Investigator—Schack, Ann; Schack, Joseph
American Printing House for Blind, Louisville, Ky.
Bureau Number—BR–6–1190 Proposal date—66
Division of Research, BEH
Kentucky Congressional District No. 3
Grant—OEC–2–6–061190–1578
FY66—$24,600; FY67—$20,340; FY68—$24,600
Descriptors—Automation, Braille, Data Processing, Educational Improvement, Reading Processes, Blind, Computers, Information Processing, Material Development, Reading, Special Education
Start date 01 Jun 66 End date 31 May 69

An advanced data processing operation will be developed for the translation of print to "grade two" braille such that—(1) translations will conform to high standards of quality, (2) materials of broad range of content and format can be accommodated, and (3) the greatest possible degree of efficiency will exist between the operation and the system emphasized. Specifically, ways of automating the translation phase of the braille plate-making process will be studied. A study series will be conducted, directed toward—(1) extending of a pioneer translation program so that a wider range of materials can be translated, (2) exploration of new approaches to programing the translation of print to grade two Braille, (3) refinement of the translation program to maximize accuracy of translation and reduce the human intervention required, and (4) analysis of the economics of the use of automated Braille production systems. The project will contribute to the development of programs for computer translation of print to Braille when combined with automated Braille plate production, will increase the time needed to produce Braille materials and increase production capabilities of Braille publishers.

510. EP000347
$70,980
INDIRECT ASSESSMENT OF HEARING SENSITIVITY BY CHANGES IN RESPIRATION
Investigator—Rousey, Clyde L.
Menninger Foundation, Topeka, Kans.
Bureau Number—BR–6–1572 Proposal date—66
Division of Research, BEH
Kansas Congressional District No. 2
Grant—OEC–3–6–061572–1747
FY66—$26,920; FY67—$20,901; FY68—$23,159
Descriptors—Audition (Physiology), Aurally Handicapped, Deaf Children, Deaf Education, Deaf Research, Auditory Discrimination, Auditory Perception, Auditory Training, Digital Computers, Emotionally Disturbed Children, Handicapped Children
Start date 01 Jun 66 End date 31 May 69

Problems in indirect assessment of hearing by seriously retarded, organically handicapped, and emotionally disturbed children will be examined. Specifically, this investigation will extend present research findings in the parameters of altered respiratory responses at the threshold of hearing. Instrumentation will be designed to allow careful evaluation of the factors which may effect changes in respiration. To accomplish this, a digital recording system and a computing unit will be designed. Development of such techniques will provide new and useful tools for the proper placement and education of the handicapped child.

511. EP000402
$348,618
SPECIAL EDUCATION INSTRUCTIONAL MATERIALS CENTER
Investigator—Wolfe, William G.
Texas Univ., Austin, Coll. of Education
Bureau Number—BR–6–2267 Proposal date 22 Feb 66
Division of Research, BEH
Texas Congressional District No. 10
Grant—OEG–4–6–062267–1551
FY66—$138,248; FY67—$64,796; FY68—$145,574

Descriptors—Education Service Centers, Instructional Aids, Instructional Materials, Instructional Materials Centers, Computer Programs, Computers, Data Processing, Interstate Programs, Special Education

Start date 01 Jun 66 End date 31 May 69

The intent of this proposal is to establish a specialized materials center which would be available to—(1) special teachers within the State of Texas, (2) students in training at the University of Texas, (3) personnel in programs of special education in four nearby states, (4) other teachers training programs located within the State of Texas, (5) counselors, especially those working in the area of vocational rehabilitation, and (6) any public or private agency relating professionally with handicapped children. The center will be established in a newly created department of special education which has over 250 undergraduate and graduate majors and 11 full-time faculty members. Areas covered include the mental retardates, emotionally disturbed, crippled, visually impaired, gifted, and special education administration. Computer specialists will also develop systems for the purpose of computer storage, retrieval, printouts of bibliographies, summaries of evaluation, and the hook up of the present computer to the networks via teletype activation.

512. EP000408

$388,540

AN INSTRUCTIONAL MATERIALS CENTER FOR CHILDREN WITH VISUAL HANDICAPS

Investigator—Alonso, Lou

Michigan St. Univ., East Lansing, Coll. of Educ.

Bureau Number—BR–6–2377 Proposal date—28 Feb 66

Division of Research, BEH

Michigan Congressional District No. 6

Grant—OEG–3–6–062377–1557

FY66—$178,495; FY67—$18,751; FY68—$191,294

Descriptors—Information Dissemination, Information Retrieval, Information Systems, Instructional Materials Centers, Special Education, Teaching Techniques, Visually Handicapped, Cooperative Programs, Library Materials, Professional Services, Program Evaluation, Teaching Programs

Start date 01 Jun 66 End date 31 May 69

This proposed center for the visually handicapped will acquire, disseminate, and evaluate current instructional materials and relevant information. Its concern will be the development and field evaluations of materials readily accessible to the teacher. This will be accomplished through providing collections of currently available materials with cooperation of state libraries, central publication to advise teachers of material availability and source, and a field contact person to provide liaison between the center and the user. There will be an expansion of a program in effect, to provide a high-speed computer-based information retrieval system, and evaluations of materials will be made and results disseminated.

513. EP010389

$9,600

A PLANNING PROJECT TO STUDY THE FEASIBILITY OF COMPUTER PRODUCTION OF BRAILLE MATERIALS FOR PUBLIC SCHOOL BLIND CHILDREN

Investigator—Nelson, Calvin C.

University of Southern California, Los Angeles

Bureau Number BR–6–8925 Proposal date 01 Jun 66

Division of Research, BEH

California Congressional District No. 21

Grant—OEG–4–7–008925–0500

FY67—$9,600

Descriptors—Blind, Braille, Computer Programs, Instructional Materials, Blind Children, California, Computer Oriented Programs, Grade Two Braille Translating Program, Public Schools, Reading Instruction

Start date 04 Nov 66 End date 31 Jul 67

The objectives of this exploratory project will be threefold—(1) to examine the need for various contracted forms of Braille in public schools, (2) to determine the manner in which computerized Braille may be most readily made available to blind school children, and (3) to do exploratory work for developing a grade two Braille translating program for the Honeywell 222 high-speed Braille pointer. Procedural activities will consist of the following—(1) the development of a model program, with preliminary testing for a grade two Braille translator system, (2) the determination of need for Braille materials, and (3) discussions with public school personnel, university personnel, and volunteer transcriber groups relative to their respective roles in making computerized Braille materials available to blind school children.

514. EP010830

$78,025

THE DEVELOPMENT AND PROGRAMING OF A SIMULATED PURE TONE AUDIOMETER

Investigator—Siegenthaler, Bruce M.; Mitzel, Harold E.

Pennsylvania State Univ., University Park
Bureau Number—BR-7-0733 Proposal date 30 Dec 66
Division of Research, BEH
Pennsylvania Congressional District No. 23
Grant—OEG-2-7-070733-4586
FY67—$78,025
Descriptors—Audition (Physiology), Aural Stimuli, Aurally Handicapped, Computers, Simulation, Audio Equipment, Audiolingual Methods,
Start date 16 Jun 67 End date 15 Jun 68

A computer terminal input will be developed to offer audiology students an opportunity for extensive and intensive pure-tone tests under controlled conditions. There will be four phases in the project—(1) developing the audiometer-simulated terminal or console, (2) engineering the interface between the audiometer-simulated terminal and the telephone line to the computer, (3) writing a computer program to simulate real-patient auditory responses, and (4) conducting preliminary trials with audiometric technicians-in-training. A document summarizing the developments of this project will be prepared. This will include (1) schematic diagrams of the simulated audiometer with other pertinent engineering data and (2) a resumé of problems and their solutions relative to developing the audiometric test procedure. A set of programed materials will be developed for audiometric test practice. The format will be a deck of punched cards suitable for entering into computer storage. The audiometric course, together with previously developed audiology materials, will be made available to others at the cost of raw materials.

515.
$43,704
EFFECTIVENESS OF AUTOMATED VISUAL PROGRAMMED INSTRUCTION WITH PARAPLEGIC AND OTHER SEVERELY HANDICAPPED STUDENTS
Investigator—Coss, Joe Glenn
Bureau Number 5-0411
Downey Unified School District
Congressional District 23
G32-14-00410-5016
FY65—$29,951; FY66—$13,753
Start date 01 Jun 65 End date 30 Nov 66

Twenty-eight paraplegic, quadruplegic, cerebral palsied, and other severely physically handicapped secondary students, patients in the Los Angeles County Rancho Los Amigos Hospitals, were included in a study of the effectiveness of automated visual programed instruction. Subjects were divided into four matched groups by reading level and intelligence, four treatment modes were used to teach arithmetic fractions and decimals. Two groups alternated between teaching machines (TM) and classroom (C). One group remained continuously with the teacher and one continuously with the machines. Machine controls were adapted to disabilities. Independent variables were—(1) instruction materials with units split at midpoint providing four units—instructional content used by machines and teachers was identical, (2) modes of instruction, and (3) matching criteria, reading level and intelligence. Dependent variables were—(1) time required to complete units, (2) performance in terms of mean difference scores (pretest, midtest, post-test), and (3) rate of learning and percent of error. Findings were—(1) the TM mode was most effective in tandem with the C mode, (2) the TM mode was most effective with lower intelligence subjects, (4) the C instruction mode became more effective as instruction material became more complex (difficult), (4) the most effective sequence is TM followed by C instruction, and (5) operation of machines can be adapted to disabilities.

516.
$9,526
AUTOMATED TRAINING IN AUDITORY PERCEPTION AND PHONETIC TRANSCRIPTION FOR BEGINNING STUDENTS IN SPEECH PATHOLOGY AND AUDIOLOGY
Investigator—Leutenegger, Ralph R.
Bureau-Number 5-1003
University of Wisconsin
Congressional-District 02
G32-59-0502-5011
FY65—$6,592; FY66—$2,934
Start date 01 Jun 65 End date 30 Nov 67

The phonetic transcription ability of 78 college students whose transcription instruction was administered by means of pre-programed language master cards was compared with that of 81 students whose instruction was non-automated. Ability was measured by seven weekly tests. There was no significant relationship on any of 29 variables with type of instruction. Intercorrelational techniques showed no positive correlation for sex, but positive correlations of grade point average and transcription and theory tests, and in four of the six seashore measures of musical abilities subtests (timbre, memory, pitch, and time). On questionnaires, students with live instruction indicated that

they were significantly more satisfied (P.05) and the main reason given was the feedback obtained from verbal imitation and the instructor's immediate critical reaction. It was concluded that live instruction be supplemented by machine practice. Three references are cited, word lists, instructions for language master users, satisfaction scale, grade data, and questionnaire data are provided.

517.

$140,870

IMPROVING THE DISSEMINATION OF INSTRUCTIONAL MATERIALS FOR HANDICAPPED CHILDREN AND YOUTH

Investigator—Vinsonhaler, John F.
Bureau-Number 7–1321
Michigan State University
Congressional-District 06
G–0–8 071321–2373
FY68—$140,870
Start date 01 Feb 68 End date 31 Jan 70

The purpose of the project is to improve the dissemination of instructional materials and relevant research findings of educational practitioners who are working with handicapped children and youth. The major project goals are: (1) to develop a method by which local funds and facilities may be used to amplify the educational impact of federally funded information dissemination projects, and (2) to demonstrate the use of this method to provide needed decentralized centers for information relevant to the education of handicapped students. The major objectives of the project are: (1) to prepare a basic system of general purpose computer programs designed for use by educators to develop local information retrieval systems for instructional materials obtained from centralized federally funded sources, (2) to adapt versions of this system of programs for the major types of computing systems so that the programs will be universally available in the educational community, and (3) to apply versions of this system to develop local education of handicapped students.

518.

$217,269

DEVELOPMENT AND EVALUATION OF STATE-FEDERAL COMPUTERIZED LEGISLATIVE INFORMATION CLEARINGHOUSE FOR HANDICAPPED CHILDREN AND YOUTH

Investigator—Weintraub, Frederick
Bureau-Number 18–2013
The Council for Exceptional Children
Congressional-District Federal
G–0–9–182013–3451 Public Law 88–164
FY69—$217,269
Start date 01 Apr 69 End date 31 Mar 72

Through information obtained from professionals in the field of special education and from the data gathering processes and consultantship of the analytic study of State legislation (Project No. 6–2650), a need for rapid search and retrieval of legislative information was demonstrated as vital to the process of legislative improvement for handicapped children and youth. This project intends to disseminate the findings and data of the analytic study of State legislation more widely in order to provide rapid and thorough access to this information. To initiate this information service, the Council for Exceptional Children, with help from the U.S. Office of Education, intends to establish a computerized legislative information clearinghouse. It will be the purposes of this project to establish a data bank of all State and Federal statutes relating to the education and training of handicapped children and youth, to make compatible for computer storage and retrieval the special education rules and regulations and the finance and appropriation laws of each State, to update all information in the data bank, to teach professionals in special education how to use the clearinghouse to establish an independently funded computerized legislative clearinghouse and to pioneer the use of computer retrieval of legal data in education.

519.

$422,456

COMPUTER-ASSISTED INSTRUCTION IN MATHEMATICS AND LANGUAGE ARTS FOR THE DEAF

Investigator—Patrick Suppes
Project 14–2880
Patrick Suppes
Stanford University
Start date 01 Jun 70 End date 31 Dec 70

It is proposed that a research and curriculum development project in language arts and mathematics be established for deaf children using the medium of computer-assisted instruction. Programs in elementary-school mathematics developed and used in the Stanford CAI project over the past several years will be used initially and will be evaluated for their appropriateness for the group being considered and revised or rewritten as necessary. Specific hypotheses concerning the relative difficulty of concepts in the program and the achievement of deaf children compared with students in regular schools will be tested.

Developmental work on a computer-assisted instructional program of language arts will be under-

taken as part of the program. Extensive testing and evaluation, both formative and classic, will be carried out at each stage of development. Teachers from participating schools will assist Stanford curriculum specialists and psychologists in the preparation as well as in the evaluation of curriculum materials to be used in the program. Instruction will be administered by Stanford's CAI network which has been in operation since 1963. Data collection and analysis will be performed using the Stanford computer. Daily lessons will be taken by students using teletype terminals connected by telephone line to the computer at Stanford where each student response is handled individually.

The project will focus on basic research on the learning difficulties of deaf children in the areas of mathematics and language arts and the preparation and evaluation of appropriate curriculum materials. A program in research training will be conducted as part of this project and will employ graduate students in the educational research program as staff members on the evaluation team.

The categories covered in this project are: (a) programmatic development; (b) educational media; (c) curriculum development and evaluation; and (d) research training.

520.

$196,341

DEVELOPMENT OF A COMPUTER-ASSISTED COURSE IN THE IDENTIFICATION AND DIAGNOSIS OF HANDICAPPING CONDITIONS IN CHILDREN

Investigator—Cartwright, G. Phillip and Mitzel, H. E.

The Pennsylvania State University
Bureau Number 48–2129
Congressional-District 23
OEG–0–9–482129–4394
FY69—$196,341
Start date 15 Jun 69 End date 14 Dec 70

The purpose of the project is to develop a complete college-level computer-assisted instruction (CAI) course dealing with the identification and diagnosis of handicapping conditions in children. The course will be aimed toward pre-school and primary level teachers of seemingly typical children.

This project should contribute to education by demonstrating the use of a new educational technology in the education and training of teachers (especially inservice teachers) and by providing high quality education to teachers who might not have the opportunity to return to a college campus for refresher training. The project also should dramatize the effect that educational technology can have in the field of special education and early childhood education.

Personnel in the departments of special education and elementary education, and the computer assisted instruction laboratory at Pennsylvania State University will cooperate to develop and program the course for the IBM 1500 Instructional System located at Penn State. Upon completion of course development and field testing, the course will be given to teachers by means of a mobile van housing a complete CAI system. A proposal to provide operating costs for the mobile van has been submitted under the provisions of the Education Personnel Development Act.

Instructional Media for Handicapped Children

521.

$456,055

COMPUTER-BASED PROJECT (PHASE)

Investigator—Dr. Bernice Kipfer

Contractor: Syracuse City School District Department of Special Education

409 West Genesee Street

Syracuse, New York 13202

This is a cooperative project between the Syracuse City School District and the General Electric Research and Development Center of Schenectady, N.Y.

The main objective of the project is to develop a systems approach to evaluating, developing and improving instructional media. To provide a method to determine the effectiveness of instructional materials with individual handicapped children, as well as determining their effect upon the curriculum for the handicapped.

Phase II of this project (second operational year) is concerned with furnishing an effective system of media evaluation to the field of special education—to demonstrate an effective technique for educating handicapped children with a major emphasis upon maximum support of the learning process through media, tutoring, team teaching and a systems approach to education.

An important objective of this second year will be to publish a report on suggestions and guidelines for development of new media by independent film producers for Media Services and Captioned Films Branch. Included in this report would be the basic principles that must be met by media producers in order for the materials to be considered by MSCF.

Higher Education Act—Title V—Part D, As Amended by

Education Professions Development Act, Part D

522.

$10,368

A PROPOSAL TO DEVELOP A CADRE OF EDUCATIONAL EXPERTS IN COMPUTER ASSISTED INSTRUCTION FOR THE STATE OF CONNECTICUT

Investigator—Douglas M. Fellows, University of Hartford

Start date 03 Feb 69 End date 31 Dec 69

This is a Development Project designed to revise the Federally Approved Project to develop a Cadre of Educational Experts for Computer-Assisted Instruction for the State of Connecticut and evaluate their success as a Demonstration Study for use by the entire nation.

This project will modify the fiscal structure so that administration of the original project will meet the legal requirements of the State of Connecticut and the Federal Government.

It will also modify areas of the original proposal to strengthen its administrative procedures in areas designed to improve the proposal.

It will provide a bridge between the acceptance of the original proposal, February 3, 1969, and the implementation of the revised proposal to become operational January 1, 1970.

523.

$20,036

SUMMER INSTITUTE OF COMPUTER-ASSISTED INSTRUCTION COURSES FOR TEACHERS FROM PITTSBURGH AND PHILADELPHIA

Investigator—C. Alan Riedesel and Keith A. Hall The Pennsylvania State University, University Park, Pa. 16802

Start date 11 Aug 69 End date 30 Sep 69

The use of educational technology holds promise as a means of improving the education of center city pupils. The objectives of the proposed institute are:

1. To provide center city teachers with the background knowledge necessary to perform new teacher roles in a computer-assisted instruction setting.
2. To provide these teachers with background knowledge of two specific one-year CAI courses (ninth grade general mathematics and ninth grade algebra), which are being developed under a Commonwealth Consortium, so that they may effectively use these courses.
3. To develop cooperatively materials to accompany CAI course material in general mathematics and algebra.
4. To provide teachers with practicum experiences in which they work directly with pupils using CAI.
5. To give center city teachers experience in developing materials for CAI.
6. To prepare the participants to provide leadership in the use of educational technology in center city schools.

This institute will be associated with "A Commonwealth Consortium to Develop, Implement and Evaluate a Pilot Program of Computer-Assisted Instruction for Urban High Schools," funded under Title III of the Elementary Secondary Education Act of 1965. This consortium is made up of the Pittsburgh and Philadelphia School Districts, The Department of Public Instruction of Pennsylvania, and The Pennsylvania State University.

Thus, the institute is designed to help teachers who will be utilizing computer-assisted instruction for the first time, with the professional skills and attitudes for the effective use of this mode of individualized instruction. Educational technology such as computer-assisted instruction can only be effective if correctly utilized in the educational setting.

Higher Education Act—Title V-Part F

Education Professions Development Act-Part F

524.
$51,261
TEACHER TRAINING
Western Illinois University
Investigator—Lewis E. Wall
Duration: Five years

This project, designed to train 25 teachers during the initial year, is comprised of three major parts: (1) Summer Institute—to offer training in specialized courses in data processing and data processing program development; (2) Academic Year—work experience in educational tasks involving curriculum construction, course content and instructional materials development; and (3) Summer Institute—to expand technical competency in advanced training in order to prepare students for positions as computer programmers, analysts, and operators.

525.
$10,000
A VOCATIONALLY RELATED PROGRAM TO PROVIDE TRAINED TEACHERS FOR A POST-HIGH SCHOOL SEQUENCE OF OCCUPATIONAL COURSES IN ELECTRONIC DATA PROCESSING
Investigator—Robert M. Gordon
University of California, Irvine
FY69—$10,000

The second year summer institute program in programing and information systems is designed to provide instruction and applications of advanced third generation computer programing concepts.

The objectives of the second year program are to establish a link with the first year program through a comprehensive review and reinforcement of basic programing techniques. The technical base will be widened and deepened through inputs of advanced programing techniques in assembly language coding, job control language, utility programs, real time programming and computer simulation. Additional materials will be presented in the areas of data communication, mathematical decisionmaking, and management information systems.

Additional time will be allocated to evaluate the total materials presented over the two year time period in terms of curriculum development design and implementation as it applies to the capabilities and needs of each participant's respective institution.

The instructional phase of the Institute will make every effort to present materials in order to take advantage of the strengths and weaknesses of the participants in order to maximize the total learning experience. Instructional methods will include all of the present techniques currently being used by Orange Coast College (participating lecture, audiovisual, multi-media, practical laboratory experience, case studies, group seminars, and independent study.) The instructional staff is composed of professional educators with a wide and varied background in computer programing techniques, management information systems, mathematics decisionmaking, and curriculum development. Additional instructional input will be provided by consultants from the computer industry.

Upon completion of the program, all participants will have acquired the materials (course outlines, audiovisual materials, self-prepared laboratory exercises, and case studies) necessary to develop and implement a viable program using third generation computer hardware. In addition they will have a clearer perspective of the environment their students will be entering.

For additional information, please contact: Bernard J. Luskin, Director, Educational Development, Orange Coast Junior College District, 2701 Fairview Road, Costa Mesa, California 92626.

526.

$40,000

A PROGRAM FOR TRAINING STATE AND UNIVERSITY LEVEL ADULT BASIC EDUCATION PERSONNEL IN TECHNIQUES OF COMPUTER-ASSISTED INSTRUCTION (CAI) AND PROGRAMMED INSTRUCTION (PI)

North Carolina State University, 109 Ricks Hall, Raleigh, North Carolina 27607

FY69—$40,000

Start date 01 Jun 69 End date 31 Jan 70

This project is designed to train fifty State or college level adult basic education personnel from among the fifty States in the philosophy, potentials, problems and techniques of applying programed instruction and computer-assisted instruction in adult basic education programs. In addition, content, materials, methods and instructional strategies will be developed for dissemination to other teachers and administrators of adult basic education programs for inservice training program uses. The participants in this program will have the opportunity to observe PI and CAI materials and methods in use with an undereducated adult population. Also the participants will actually program and use the IBM 1500 Computer-Assisted Instructional System located at North Carolina State University's Adult Learning Center.

527.

$160,000

PROJECT ASSIMILATION—ASSIMILATING THE SYSTEM OF EDUCATION BEHAVIOR MODIFICATION, COMPUTERIZATION AND PRE-VOCATIONAL TRAINING TO DEVELOP ADULT EMPLOYABILITY

Division of Mental Health, State of Missouri, 722 Jefferson Street, Jefferson City, Missouri 65101

FY70—$160,000

Start date 30 Jun 70 End date 30 Jun 71

The Missouri Division of Mental Health is seeking $537,532, under Public Law 89–750 to be matched with $566,472, of State money to provide in a totally structured educational environment using behavior modification techniques such specialized intensive remedial measures as have been found to be effective in enabling functionally illiterate patients between the ages of 16 and 44 to achieve their full potential for gainful employment and for useful meaningful participation in society.

The 360.30 and 360.50 Computers of the Division of Mental Health will be used for the ongoing data collection retrieval, followup, and evaluation.

Such persons are unable to achieve their potential unaided due to a lack of motivation caused by a combination of:

a. Personal paucity of successful educational experiences in the past.
b. Residual effects of their original condition.
c. Erosion of sense of independence and ability to make decisions by prolonged hospitalization so that the patient becomes unemployable.

Initially such remedial measures will be directed towards 160 patients in three facilities of the Division of Mental Health.

By means of travelling teams, the program by the end of the first year will involve

a. The other five large hospitals and three major Mental Health Centers of the Division of Mental Health.
b. The eight regional diagnostic clinics throughout the State which have in the past two years been forced to concentrate their 32 classrooms and 500 staff on the problems of preschool and school age children almost to the exclusion of adults.
c. The Foster Community for former mental patients in New Haven, Missouri which is believed to be the first time in the United States that a whole town has become totally involved in providing homes for former hospital patients.

528.

DEVELOPMENTAL AND DEMONSTRATION PROJECT IN THE USE OF MODERN EDUCATIONAL TECHNOLOGY FOR INSTRUCTION OF UNDEREDUCATED ADULTS—PHASE IV

North Carolina State University, Department of Adult Education Raleigh, North Carolina 27609

Start date 16 Jun 70 End date 30 Jun 71

This is the fourth year of a five-year experimental and demonstration project concerned with applying modern educational technology to Adult Basic Education. The project uses both Programed Instruction (PI) and Computer-Assisted Instruction (CAI) in the context of an Adult Learning Resources Center (ALRC) accessible to the low-income community.

Accomplishments of the first three years include: designing the overall program; developing curriculum and instructional materials in Reading, Computation, Home and Family Life, Consumer Education and Citizenship for both PI and CAI modes; opening the Center and installing and debugging both hardware and software; implementing a program of professional development and teacher training at the National, regional, State and local levels; establishing linkages with appropriate agencies, organizations and groups to disseminate information and make the program relevant to the target population of educationally disadvantaged adults; planning a comprehensive management information and evaluation system to answer key questions about the program's value and potential.

Fourth year objectives include: finish development of curriculum and instructional materials; augment professional development and teacher training programs; strengthen existing linkages and make new contacts; perform studies to answer questions such as—What is the best mix of educational media and modes for teaching specific subject matter? What is the optimal way to implement PI and CAI for adults? What does PI and CAI cost per unit of accomplishment? For whom and under what circumstances are PI and CAI most effective? How does PI/CAI compare with traditional methods in terms of cost/benefits? How can cost be reduced and effectiveness increased?

This fourth year is crucial to the project's outcome since uninterrupted operation of the Center is required to consolidate gains made so far and conduct essential research and evaluation studies.

Elementary and Secondary Education Act—Title I

Title I

Title I funds are administered by the Bureau of Elementary and Secondary Education. Money is allocated to each of the 50 States, and it is the responsibility of the Title I State Director in each State to monitor all projects in his State. The Office of Education in Washington has few records, if any, of the projects that are on-going in each State, so that the only way to obtain detailed information about specific projects is by contacting the State Directors.

A sample of ten States was chosen for purposes of this publication. Of these ten, five Directors stated that there were no computer related projects in their States. These included Texas, Ohio, Kentucky, Illinois, Washington. The five other State Directors found that there were computer-related projects on-going in their States. These included California, New York, Tennessee, Pennsylvania, and the District of Columbia. The following abstracts were developed from information given over the telephone and by supplemental materials that were sent, on request, by Title I State Directors to the Office of Education. Thus, some of the funding figures are approximate, and some may be partial totals. The projects should be taken as examples of the types of computer-related projects which are supported by title I money.

Title I—California (Los Angeles)

529.

$13,000

DESIGN FOR REPORTING ELIGIBILITY COUNT, PROGRAM IMPROVEMENT AND COST-EFFECTIVENESS FOR ESEA, TITLE I, PROJECTS

FY69—$13,000

Start date Sep 68 End date Jun 69

Objectives: (1) to design a data processing oriented eligibility count using AFDC data supplied by the Department of Public Social Service of the county; (2) to assist school districts with research design, operation and final evaluation; (3) to establish a procedure for assessment of program effectiveness and improvement during the project year; (4) to produce a design for cost-effectiveness measurement for project components.

Pertinent data was processed on a Honeywell 200 computer. Final product was a computer printout, by school district, that contained the eligible child's name, AFDC number, street address, city ZIP CODE, age, sex, and proper school district.

For information contact: Don Rucker, Los Angeles County Superintendent of Schools, 155 W. Washington Blvd., Los Angeles 90015 (213) 749-6911

Title I—California (Los Angeles)

530.

$107,669

A STUDY OF THE RELATIONSHIP BETWEEN PUPIL READING ACHIEVEMENT GAINS AND FUNDS EXPENDED FOR PARTICIPANTS IN ESEA TITLE I PROJECTS IN LOS ANGELES COUNTY

FY70—$107,669

Start date 01 Jun 70 End date 01 Dec 70

A random sample of approximately twenty Los Angeles County school districts which conducted ESEA Title I programs in grades 2 through 6 including reading components during the 68–69 school year will be selected. The total cost of instruction for Title I pupils including major sources of funds will be computed. Costs will be related to pupil's reading achievement gains. Computer data processing will be used to compute statistics.

For information contact: William Joe Turner (Director), Consultant Division of Research and Pupil Personnel Services, Los Angeles County Superintendent of Schools Office, 155 West Washington Blvd., Los Angeles, California 90015. (213) 749-6911, ext. 116.

Title I—District of Columbia

531.

$73,216

DATA PROCESSING PROJECTS AT CARDOZO AND DUNBAR HIGH SCHOOLS

FY70—$33,756; FY71—$39,460

Start date Sep 69

The purpose of these projects is to provide high school students with concentrated entry level training in the field of Business Data Processing. Students are given an opportunity to see how statements of accounts, invoices, customer ledger cards, inventory record, sales reports, and payroll operations are processed automatically. They are initially trained for proficient operation of the card punch machine, verifier, and sorter. During the second phase of the project students use the reproducer and collator and learn control panel writing for the IBM 407 accounting machine.

For information contact: Harris M. Taylor, Acting Director of Federal Programs, Department of Federal Programs, 1411 K. Street N.W., Washington, D.C. 20005.

Title I—New York (Brooklyn)

532.
$151,088
DISTRICT 6 OPEN ENROLLMENT PROGRAM (1969–1970)
FY70—$151,088
Start date 01 Sep 69 End date 30 Jun 70

Later elementary pupils—Supportive services for Open enrollment children will be given to receiving schools during the regular school day. (JHS 52, PS 98, PS 132, PS 152, PS 187, PS 189). The participants will receive special intensified remedial and guidance services. The Guidance Counselor will help children to adjust better to receiving school community and curriculum. They will review progress and make recommendations for advancement of Open enrollment children. In addition to on-going current programs, these Counselors with the help of Parent Program Assistants, will plan orientations and follow-up workshops for parents and children from sending and receiving schools.

Secondary-grades 7, 8. The program activities at JHS 52 does provide additional teachers to individualize needs and teaching approaches, and describes below in Section E., activities, the innovative approaches to teaching math, science, reading, and music. (One teacher of Computer Math will instruct pupils in the use of Computer operations. He will familiarize pupils with Computer technology so that pupils will be competent to program simple formulae (Computer language, binary system, octol system, flow charting, teletyping). 1500 pupils will be served.

For information contact: Gene M. Satin, Office of State and Federally Assisted Programs, 110 Livingston Street, Brooklyn, New York 11201. (212) 596-6695

Title I—New York (Brooklyn)

533.
$203,092
THREE JUNIOR HIGH SCHOOL TEENAGE ACADEMIES
FY70—$203,092
Start date 01 Jun 70 End date 31 Aug 70

The Creative Arts Academy will provide a program for talented and potentially talented pupils in the creative arts through courses in creative writing, dramatics, dance, fine arts, journalism, vocal and instrumental music and music appreciation and enrichment. The Mathematics-Science Institute will provide a program for talented and potentially talented pupils in mathematics and science through courses in astronomy, geology, electronics, photography, anatomy, physiology, biological techniques, microbiology, genetics, sets, groups and matrices, linear programing, computer programing, finite and transfinite mathematics. The School for the Humanities will provide a program of studies through a humanities approach for adolescents designed to overcome previous failure and academic underachievement during the regular school year. The project will involve 900 students.

For information contact: Gene M. Satin, Board of Education of the City of New York, 110 Livingston Street, Brooklyn, New York 11201 (212) 596-6695

Title I—New York (Niagara Falls)

534.
$56,481
OPERATION FORWARD 1970–1971
FY71—$56,481
Start date Sep 70 End date Jun 71

The project will cover the areas of mathematics, business education, basic education, and psychological services. The psychologist will be involved with the Learning Center for returning students from institutions and other ESEA Title I projects. It will be responsible for much of the testing on a pre-post project basis. A learning center will be established where returning students from institutions would be taught the required academics such as English, social studies, math and science. A demonstration program in basic education for Junior High School Teachers would also be established. A computer terminal will be placed in two secondary schools—Niagara Falls and North Junior under the supervision of the math staff and two trained aides. Students will be taught the Basic Computer Language and will be encouraged to use the computer as a tool to solve specific problems in their particular subject area. A wireless shorthand system will be an effective aid in teaching, testing and evaluation.

For information contact: William E. Valentine, Administrative Assistant, P.O. Box 399, Board of Education, Niagara Falls, New York. (716) 285-5251

Title I—Pennsylvania (Chester)

535.

TALKING TYPEWRITER

About $40,000 invested 3 years ago. Costs about $1500 per year to run. On-going for 4 years.

The Talking Typewriter's primary use is in programed basic instruction utilizing strong reinforcement techniques. A teaching presentation of the word or concept is given and then a reinforcing response is required both verbally and kinesthetically. The kinesthetic response is through the typewriter keys. Material is taught in extremely small sequential steps than reinforced by child response immediately after presentation; the child also responds with a teacher at the end of the session. The linguistics and synthetic phonics approach is used to program the teaching instrument. The machine is programmed through a push button keyboard representing the English commands. Commands are stored on a special card designed for use with the machine. Voice is stored on the same card with computer commands. Children go at their own speed. Deals with children who have reading problems below third grade level.

For information contact: Charles R. Mekeel, Director, Federal Aid Projects, ESEA Title I, School District of the City of Chester, 500 West Ninth Street, Chester, Pennsylvania 19013. (215) TR 4-7131

Title I—Pennsylvania (Erie)

536.

$4,510

COMPUTER SCIENCE EDUCATION PROGRAM

FY70—$1,522; FY71—$2,988

Start date Feb 70 End date Dec 70

The Federal Programs Department of the School District of the City of Erie, in cooperation with the Department of Mathematics at Gannon College has developed a two level "Special Computer Science Education Project." Thirty Erie City Public and Non-Public, ESEA Title I High School students will be invited to participate in the Level I Computer Science Education Project which will provide (a) Class Lectures: Computer Programing, using Machine Language, and Fortran Language. (b) Computer laboratory supervised laboratory sessions preparing and processing computer programs, preparing cards using Key Punch, programing using IBM 1620 and related equipment. Program will include 15 Seniors and 15 Juniors. The Juniors will return for the Level II program in the fall. This advanced phase involves advanced programing techniques, use of the Gannon College time sharing terminal, visits to area industries which use computers. Each level will meet 12 weeks on Saturdays from 9:00—10:30 for lecture and from 11:00 to 5:00 for computer laboratory.

For information contact: Mr. Raymond Dombrowski, Administrative Assistant, Erie Public Schools, Federal Programs Department, 1511 Peach Street, Erie, Pennsylvania 16501.

Title I—Tennessee (Memphis)

537.

ELEMENTARY ACHIEVEMENT EMPHASIS COMPUTER-ASSISTED INSTRUCTION IN MATHEMATICS

To begin in FY71. Computer-Assisted Instruction in mathematics using Title I money. Lease software package from SRA utilizing terminals funded under Title III in Title I schools. To last for one year.

For information contact: Colonel Maurice Roach, Memphis, Tennessee— (901) 323-8311.

Title I—Pennsylvania (Millersville)

538.

$80,000

COMPUTER-ASSISTED INSTRUCTION

FY71—$80,000

Start Date 01 Nov 70

State college at Millersville, 7 miles outside of Lanchester, purchased an RCA Spectra 70 Computer. Contract with Title I funds to place teleterminals in the schools. The project involves seven school districts. Covers reading, arithmetic and language arts. Funded on a one year basis. At present there are 16 terminals.

For information contact: Mr. Richard Smith, State College at Millersville, Pennsylvania.

Title I—Tennessee (Nashville)

539.

Approximately $50,000/YEAR

INDIVIDUALIZED INSTRUCTION

FY-$44,000

Start Date—FY66

This project utilizes computers to help individualize instruction and assess needs of individual students. Provides computer print out on each student. Also helps with attendance. Purpose is to release teacher from bookkeeping duties. Also, to assist with project evaluation.

For information contact: Mr. M. B. Neely, Nashville, Tennessee. (615) 747-5148

Appendixes

Appendix A: Shortcomings of The Analysis

The data in this report are as complete and as accurate as possible, based on the records available in the USOE. There are, however, a number of factors affecting the data of which the reader should be aware.

First, USOE's programs are designed to meet needs at particular educational levels, such as elementary and secondary, or of specialized groups, such as the handicapped and disadvantaged. The USOE efforts are and have been focused on the educational problems and not specifically on the means to solve them. No centralized attempt has therefore been made to keep records on the computer activities within given projects. The data in this report have been gathered from the ERIC computer-based files on project information, from *Pacesetters* and *Current Project Information,* which are compendiums of project abstracts, and from each of the Bureaus and National centers in USOE through discussions with program officers and their search of existing files.

About 80 percent of all computer projects have been funded either through the Cooperative Research Act or Title III of the ESEA. The list of projects funded through the Cooperative Research Act is believed to be complete. This is not the case, however, with the list of projects funded by title III of the ESEA. At the end of fiscal year 1968, the administration of that title changed from USOE to the States. Records currently available within the USOE for title III are incomplete for the years FY 1969, FY 1970, and FY 1971.

The States also administer Title I of the ESEA. For purposes of this study, records in USOE, again, are rather fragmentary. A partial survey of ten States was made to discover the types of computer projects being funded under Title I. A sample of the projects in these States has been obtained and included in this report.

The ERIC system maintains abstracts of current projects funded through the National Center for Educational Research and Development and through title III of the ESEA. These project abstracts, as published in *Current Project Information* and in *Pacesetters,* do not reflect the alterations in the project activities made during contract negotiations or during the span of the project. Often an abstract does not state if a project was terminated prematurely. Although an abstract may suggest that computers were involved in the project, in some cases, they may not have been utilized and vice versa.

From the records available, there has been no way of dividing a project's expenditures into costs for computer activities and for non-computer activities. Further, for a few projects, existing records contain more than one fiscal figure, so some of the figures given in this report may be inaccurate. The total funding of projects which began before, but continued to receive support in FY 1966, have been included in the figures for FY 1966.

The data which have been presented in this report are the best available. To assume, however, that the data are totally accurate or complete is a mistake. The figures presented both for the number of projects funded and for the expenditures should be viewed as approximate. The orders of magnitude of those figures, however, are correct, as are the trends which have been derived from the data.

Appendix B: A Guide To Information Sources

This appendix is adopted with permission from: "An Evaluative Review of Uses of Computers in Instruction," Project CLUE (Computer Learning Under Evaluation), Vol. I, Appendix A, K. L. Zinn, final report of USOE project no. 8–0509, December 1970; and "A Guide on Uses of Computers in Engineering Education," L. P. Grayson, *Engineering Education*, March 1970, pp. 755–756.

Literature

This section on the literature on computers in education is not comprehensive nor all inclusive. Rather, it is intended to identify sources which can introduce the reader to a variety of uses of computers in education, particularly instruction, to indicate some of the problems and promises of this technology, and to guide the reader to already developed instructional programs. Many of the references presented list other sources so that the interested person can investigate indepth the literature on specific educational applications of computers. Most of the organizations for which no address is given can be located using the following section of this appendix.

Applications of Technology to Education

1. Doyle F.J., and Goodwill, D.Z., *An exploration of the Future in Educational Technology*. This report presents the results of a study/survey involving a 40-man panel of experts which forecast future directions and developments in the field of educational technology. Available free of charge from BELL CANADA, 1050 Beaver Hall Hill, Montreal 128, Quebec.

2. *Educational Technology in Higher Education: The Promises and Limitations of ITV and CAI*, report of the Instructional Technology Committee of the Commission on Education, National Academy of Engineering, September 1969. The report provides an overview of the field, discusses the promise of educational technology, problems of higher education, prospects for future funding, the role of engineering schools in the development of educational technology, and includes a succinct but comprehensive view of CAI. It may be obtained free of charge from the National Academy of Engineering, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

3. *To Improve Learning: A Report to the President and the Congress of the United States*, by the Commission on Instructional Technology. Appointed by the Secretary of Health, Education, and Welfare and the Commissioner of Education in March 1968, the Commission was concerned with all of instructional technology—old, new and future; printed, mechanical and electronic; automated and cybernated; from classrooms to learning centers; from overhead projectors to satellite transmissions; from pre-school to graduate school. The report makes recommendations and suggests priorities for Federal involvement in instructional technology. Available from the U.S. Government Printing Office at $.50 per copy.

4. *Trends in Instructional Technology*, ERIC Clearinghouse on Educational Media and Technology 1970. This reports the results of a survey of 40 leaders in the field which was followed by an in-depth discussion by 10 leaders. Free of charge.

Computers in Education: Guides and Bibliographies

1. Barnes, O. D., "A Computer Assisted Instruction Annotated Bibliography," September 1968. It contains 113 entries, all annotated, from 40 journals. Available for $.50 from Phi Delta Kappa, Inc., Eighth & Union, Bloomington, Indiana 47401.

2. Engle, G., *Bibliography and KWIC Index*, Technical Report TR–2283, U.S. Naval Weapons Laboratory, Dahlgren, Virginia, April 1969.

3. Entelek, Inc., *Computer-Assisted Instruction Guide*, 1968. It lists 226 programs by 160 authors at 38 CAI centers under 30 major subject headings.

4. Hickey, A. E., *Computer-Assisted Instruction: A Survey of the Literature*, Third Edition, Entelek, Inc., October 1968. It contains abstracts, papers, reports and other documents primarily from the period October 1966 and July 1968, and includes a discussion of CAI applications, major CAI centers, system, programing languages, program evaluation, and the administration of CAI.

5. Holznagel, D., *Computer Education Resource Catalog*, 1968. The catalog includes a serial bibliographic listing of books, pamphlets and periodicals

in general categories according to their major content or purpose, an annotation of selected works, and a list of films and reviews. Available from Computer Instruction NETWORK, 4924 Rives Road North, Salem, Oregon 97303.

6. Lekan, H. A., *Index to Computer-Assisted Instruction,* January 1970. This is a comprehensive compilation of 910 CAI programs from 85 sources at several levels of education, including universities. The programs are cross-referenced according to subject, computer required, programing language, instructional logic and institutions producing the program. Available for $19.50 from Sterling Institute, 3750 Prudential Tower, Boston, Massachusetts 02199.

7. Vinsonhaler, J., *Index for Bibliography of Computer Applications in Education.* This is a printed version of a computer-based file of an annotated bibliography on computers in education. Available from the Information Systems Laboratory, Michigan State University.

8. Zinn, K. L. and McClintock, J., "A Guide to the Literature on Interactive Use of Computers for Instruction" (Second Edition). This paper presents various uses of computers in instruction, types of lessons, systems and computer languages, existing literature surveys, meetings, conferences and symposia which have been held, professional organizations, publishers and commercial information services, a glossary of common terms and a list of individuals responsible for development and demonstration projects. Available free of charge from the ERIC Clearinghouse on Educational Media and Technology.

9. *New Technology in Education, Selected References,* prepared by the Congressional Research Service, Library of Congress, for the Subcommittee on Science, Research, and Development, of the Committee on Science and Astronautics, U.S. House of Representatives September 1971. This is a very extensive bibliography of references on educational technology, dividing the literature into 29 separate categories. Available from the U.S. Government Printing Office.

Computers in Education: Reviews and Major Reports

1. Becker, J. (ed.), *Interlibrary Communications and Information Networks,* John Wiley and Sons, Inc., New York, 1971. This report of a conference held in 1970 contains 31 background papers and summaries of findings of five working groups on network needs and development, technology, services, organization, and planning.

2. Brown, G. W., Miller, J. G., and Keenan, T. A., *EDUNET: Report of the Summer Study on Information Networks conducted by the Interuniversity Communications Council (EDUCOM),* John Wiley and Sons, Inc., New York, 1967. This is a record of a meeting in July 1966 of some 180 individuals who assessed the desirability of an educational communications system, including applications, time schedules, budgets, and organizational relationships.

3. "Computers in Undergraduate Education: Mathematics, Physics, Statistics, and Chemistry," proceedings of a conference sponsored by the National Science Foundation, December 1967. Panels of university faculty were formed in each discipline to discuss their views on the impact which they believed computers would have on their undergraduate programs and to make recommendations for future NSF activities. The panel reports and related discussions appear in this document. Copies may be obtained from the Science Teaching Center, University of Maryland, College Park, Maryland 20740.

4. Gentile, J. R., "The First Generation of Computer-Assisted Instructional Systems: An Evaluative Review," *Audiovisual Communications Review,* Vol. 15, no. 1, spring 1967. pp. 23–53. After a brief history, this paper discusses the semantic problem of programmed content and strategy, author language convenience, systems capability and the effectiveness problem for instructional materials.

5. Levien, R. E., et al, *The Emerging Technology: Instructional Uses of the Computer in Higher Education, draft,* The Rand Corporation, report R-503-CCOM/NSF/RC, September 1970. This report is comprised of three sections: an introduction to the computer's use in higher education, including research, administrative, library and instructional uses; the state of the art of computer use in instruction; and future prospects for computer use in instruction projected over the next two decades. Available from The Rand Corporation, 1700 Main Street, Santa Monica, California 90401.

6. Pierce, J. R., et al, *Computers in Higher Education: Report of the President's Science Advisory Committee.* This report presents general recommendations for computer use for teaching and student research in all curriculum areas. Available

from the U.S. Government Printing Office, February 1967.

7. Morgan, R., "A Review of Educational Applitions of the Computer, Including those in Instruction, Administration and Guidance," ERIC Clearinghouse on Educational Media and Technology, 1969.

8. Silberman, H. F., and Filep, R. T., "Information Systems Applications in Education," in *Annual Review of Information Science and Technology*, Vol. 3, ed. by C. A. Cuadra, Encyclopedia Britannica, Inc., Chicago 1968, pp. 357–395. This is a heavily referenced review of the use of computers in education, including CAI, CMI, counseling, testing, administration and educational data processing. It discusses current operational systems and areas of R & D activity.

9. Silvern, L. C. *Systems Engineering of Education VI: Principles of Computer-Assisted Instruction Systems.* This text reviews equipment, systems, and strategies along with a presentation of Silvern's approach to course development, production and tryout. Available from Education and Training Consultants Company.

10. Stolurow, L. M., "Computer-Assisted Instruction," in *The Schools and the Challenge of Innovation,* McGraw-Hill Book Co., Inc., New York, 1969, pp. 270–319. This chapter discusses the various purposes of CAI, its advantages and financial costs.

11. Zinn, K. L., "A Comparative Study of Languages for Programing Interactive Uses of Computers in Instruction," February 1969. This interpretive report on existing programing languages is available from EDUCOM, 100 Charles River Plaza, Boston, Massachusetts 02114.

12. Zinn, K. L., "An Evaluative Review of Uses of Computers in Instruction" (Project CLUE), final report of USOE project no. 8–0509, 2 volumes, August 1970. This report is a study of the technology, applications, cost effectiveness and trends for uses of computers in instruction, at all levels of education. It discusses various topics of concern, including operating procedures and costs, instructional strategies and programming languages, research studies evaluating the technology, and strategies for developing computer-based learning materials. The report contains a guide to relevant literature and other sources of information, and a selected sample of instructional materials and learning exercises. Available from the ERIC Document Reproduction Service, Post Office Drawer O, Bethesda, Maryland 20014.

Computers in Education: Background Material

1. Annett, J., and Duke, J., (eds.), *Proceedings of a Seminar on Computer Based Learning Systems,* National Council for Educational Technology, March 1970. Available from Books for Schools Ltd., Councils and Education Press Ltd., 10 Queen Anne Street, London WIM 9 LD, England.

2. Atkinson, R. C., and Wilson, H. A., *Computer-Assisted Instruction: A Book of Readings,* Academic Press, Inc., New York, 1969. This book includes a survey of the development of the instructional use of computers, discussing hardware and software applications as well as the economies of implementing CAI.

3. Blum, R., (ed.), *(Preliminary) Proceedings of the Conference on Undergraduate Science Education,* sponsored by the Commission on College Physics and the Illinois Institute of Technology, August 1970.

4. Bushnell, D. C., and Allen, D. W., (eds.), *The Computer in American Education,* John Wiley and Sons, Inc., New York, 1967.

5. *Computer-Based Vocational Guidance Systems,* U.S. Office of Education. This report of 27 papers developed for a symposium contains three sections on theoretical considerations in developing systems, problems of implementation, and descriptions of some systems which are under development. Available from the U.S. Government Printing Office, $1.25.

6. Duggan, M., McCartan, E., and Irwin, M., (eds.) *The Computer Utility—Implications for Higher Education,* D. C. Heath and Company, Lexington, Massachusetts, 1970. This volume contains papers from a symposium held at Manchester, New Hampshire, in May 1969.

7. *EDP and the School Administrator,* 1969. This primer on electronic data processing, includes advice on how to get started, cautions and positions, job descriptions in EDP, a bibliography and a glossary. It is available for $3.00 from the Association of School Administrators, 1201 Sixteenth Street, N.W., Washington, D.C. 20036.

8. Feurzeig, W., "Educational Potentials of Computer Technology," report #1672, Bolt, Beranek

and Newman, Inc., September 1968. This is a report on various uses of computers in instruction, including drill, tests, games, simulation and others. Available from the Defense Documentation Center.

9. Gerard, R., (ed.), *Computers and Education*, McGraw-Hill Book Company, Inc., New York, 1967.

10. Grayson, L. P., "Computer Assisted Instruction and Its Implications for University Education," *Journal of Engineering Education*, vol. 59, no. 6, February 1969, part I. This article describes some of the problems and suggests solutions in hardware, software, effectiveness and implementation, and discusses the future and promise of CAI.

11. Grayson, L. P., "A Paradox: The Promises and Pitfalls of CAI," *EDUCOM*, March 1970, vol. 5, no. 2. Discusses advantages and disadvantages of CAI.

12. Harmon, H. H., Helm, C. E., and Loye, D. E., "Computer-Assisted Testing, Proceedings of a conference," Educational Testing Service, Princeton, 1968.

13. Holtzman, W., (ed.), *Computer-Assisted Instruction, Testing and Guidance*, Harper and Row, New York, in press.

14. *Journal of Engineering Education*, vol. 59, no. 6; February 1969, part I. This volume contains 12 articles from the ASEE Symposium on the Applications of Technology to Education. A variety of views on the role of computers in education, systems analysis in education, and managing change in educational institutions are presented. Following each section is a record of some of the discussion by the symposium participants on each topic. Participants included engineering teachers, learning theorists and educators, and representatives of instructional hardware and software manufacturers.

15. Kochen, M., "Information Sciences and Computer Aids in Education," *The Information Bazaar*, L. Schultz, (ed.), Medical Documents Service, Philadelphia, May 1969, pp. 209–220. This survey describes progress in computer-aided instruction, computer-aided question answering and computer-aided information retrieval.

16. Kopstein, F. F., and Seidel, R. J., "Computer-Administered Instruction Versus Traditionally Administered Instruction: Economics," professional paper 31–67, Human Resources Research Office, Alexandria, Virginia, June 1967.

17. Meimer, R., (ed.), *Computer-Assisted Instruction and the Teaching of Mathematics*, report of a conference in September 1968. This book includes an article, "Characteristics of CAI Configurations from an Author's Viewpoint," by Max Jerman on the capabilities and limitations of existing CAI hardware, particularly terminal services. Available from the National Council of Teachers of Mathematics, 1969.

18. *Relationship of Automatic Data Processing Trainers, Curriculum and Methodology in the Federal Government*. This report of a conference held in May 1967 contains chapters devoted to the need for ADP training, ADP personnel needs in the Federal Government, training needs in industry and higher education, and recommendations for curriculums. Available from the U.S. Government Printing Office, 35¢.

19. Scheepmaker, B., and Zinn, K. L., *Preliminary Proceedings of the World Conference on Computers in Education*, International Federation for Information Processing (IFIP), Amsterdam, in press.

20. "The Computer and Education," a special issue of *Educational Technology*, March 1970. This issue contains 12 articles on various aspects of computers in education including the role of the public school in CAI, effects of CAI on children's behavior, the computer and the junior college and others.

21. Utall, W., "Computer Teaching Machines," *Real-Time Computers: Techniques and Applications in the Psychological Sciences*, Harper and Row, New York, 1967, pp. 234–269. This chapter discusses the psychological foundations and types of teaching machines.

22. White, P. T., "Behold the Computer Revolution," *National Geographic*, vol. 138, no. 5, November 1970, pp. 593–633. An introductory article describing the broad range of applications, including education, for which computers are being used.

Professional Organizations, Publishers, and Commercial Information Services

Publishers and professional organizations which periodically publish materials relevant to interactive uses of computers in education are listed below. Commercial information services which sponsor workshops, issue newsletters and sometimes provide computing services are also included.

Following the descriptive portion, a table summarizes the periodicals.

ACADEMIC PRESS INCORPORATED, Berkeley Square House, Berkeley Square, London, W 1, England, and 111 Fifth Avenue, New York, N.Y. 10003. Since January 1969, the International Journal of Man Machine Studies has been published quarterly. The content includes instructional use of computers along with man-machine interaction, the man-machine interface, mathematical and engineering approaches to the study of man and biological approaches to the development of machines. Dr. G. B. Chaplin is editor (140 s or $7.00 per year).

AMERICAN EDUCATIONAL RESEARCH ASSOCIATION (AERA), 1201 16th Street, N.W., Washington, D.C. 20036. Richard A. Dershimer, Executive Officer. *The Educational Researcher* is the official newsletter of the Association and is published about seven times a year. Currently edited by W. C. Wolf, Jr., at 22 Mt. Pleasant, Amherst, Massachusetts 01002, the newsletter notes meetings, new Federal programs and the initiation of major research projects. ($2.50 per year).

The *American Educational Research Journal,* published quarterly ($8.00 per year) frequently carries articles related to computers in education. Material can be sent to the Editor, Richard L. Turner, at the School of Education, Room 229, Indiana University, Bloomington, Indiana 47401.

The *Review of Educational Research* includes in its five issues per year two or three chapters on educational technology and computers ($10.00 per year). The editor is Gene V. Glass, Laboratory of Educational Research, University of Colorado, Boulder, Colorado 80302.

The Annual AERA meeting in February is likely to include reports of current research and development. Special sessions are arranged by the Special Interest Group on Computer Aids to Instruction (SIGCAI) under the chairmanship of John Coulson, Public Systems Division, System Development Corporation, Santa Monica, California 90406.

AMERICAN FEDERATION OF INFORMATION PROCESSING SOCIETIES (AFIPS), 211 E. 43rd Street, New York, N.Y. 10017. The Fall Joint Computer Conference (FJCC) and Spring Joint Computer Conference (SJCC) include sessions relevant to instruction, but often under such headings as system design, programing languages, and natural language processing, as well as under computer-assisted instruction. The *Conference Proceedings* of FJCC and SJCC are published by the AFIPS Press at the time of the meetings (usually November and April); before 1969, proceedings were published by Thompson, Spartan and others.

AMERICAN PSYCHOLOGICAL ASSOCIATION (APA), 1200 Seventeenth Street, N.W., Washington, D.C. 20036. *Educational Psychologist* is the official newsletter of Division 15 (Educational Psychology) and is published three or four times a year. Correspondence and contributions should be directed to Richard E. Ripple, Editor, Division of Educational Psychology, Stone Hall, Cornell University, Ithaca, New York 14850. Subscriptions are $1.00 per academic year.

The *Journal of Educational Psychology* is a bimonthly publication which includes articles and reports associated with problems of learning and teaching ($10.00 per year). Manuscripts and correspondence on editorial matters should be sent to Wayne H. Holtzman, Editor, University of Texas, Austin, Texas 78710.

AMERICAN SOCIETY FOR ENGINEERING EDUCATION (ASEE), Suite 400, One Dupont Circle, Washington, D.C., 20036. *Engineering Education,* published eight times a year ($16.00 per year), has been devoting entire issues to computers, information processing, and effective teaching. *ERM,* a publication of the Educational Research and Methods Division, is published quarterly ($2.00 per year). It regularly contains articles on the use of computers in engineering education.

ASSOCIATION FOR COMPUTING MACHINERY (ACM), 1133 Avenue of the Americas, New York, New York 10036. A number of the monthly issues of *Communications of the ACM* include articles on use of computers for instruction. Often these are concerned with the training of computer programers, technicians and users. The Education Editor is Peter Wegner, Department of Applied Mathematics, Brown University, Providence, Rhode Island 02912. Sections on programing languages and computational linguistics occasionally are relevant to instructional programs ($20.00 per year).

The *Journal of the ACM* includes relevant material only occasionally, but issues of *Computing Reviews* frequently have abstracts of technical reports and papers from projects using computers for instruction.

Computing Surveys began publishing quarterly in March 1969 as the survey and tutorial journal of the ACM ($7.00).

The Association has a Special Interest Group on computer uses in education; the current chairman is Karl L. Zinn, 1315 Hill Street, Ann Arbor, Michigan 48104. A bulletin, INTERFACE, is issued five times a year with membership at $4.00 per year. It contains technical reports, material on the technical progams of ACM, and information about special meetings and workshops in the field of computers and education. The group also plans sessions for meetings of ACM (August) and AFIPS (usually November and April). The Association has numerous other Special Interest Groups and Committees which may be found under the specific discipline in the next section.

ASSOCIATION FOR THE DEVELOPMENT OF INSTRUCTIONAL SYSTEMS (ADIS), C. Victor Bunderson, Chairman, CAI Laboratory, Sutton Hall, University of Texas, Austin, Texas 78721, and Helen Lekan, Secretary-Treasurer and Newsletter Editor, Instructional Media Laboratory, University of Wisconsin—Milwaukee, Wisconsin 53201. *ADIS Newsletter,* issued monthly provides for the exchange of system programs and instructional materials among its members ($6.00 per year). The Association, which meets at least twice a year, is presently limited to users of IBM equipment for instruction, but is likely to broaden its scope.

ASSOCIATION FOR EDUCATIONAL DATA SYSTEMS (AEDS), 1201 Sixteenth Street, N.W., Washington, D.C. 20036. *AEDS Monitor,* the magazine of the Association, is published 11 times each year; most material has been on data processing ($15.00 per year). Material for publication should be sent to Dean D. Crocker at the Iowa Department of Public Instruction, Des Moines, Iowa 50319.

The *Journal of the Association of Educational Data Systems,* published four times each year, includes many articles on computers and education ($10.00 per year). Bruce Alcorn is editor.

The annual meeting of the Association in March or April always includes sessions on computers and instruction. A series of workshops on educational data processing held at various locations during 1967–68 included sessions on CAI; proceedings are available from AEDS.

AUTOMATED EDUCATION CENTER, P.O. Box 2658, Detroit, Michigan 48231. Frank H. Gille, Publisher. The *Automated Education Handbook* ($35.00) and a newsletter, *Automated Education* ($18.00 per year) provide information about programed instruction, audio and visual media, and computer assistance. Most of the material in the newsletter is selected from news releases and other publications for potential educational users of computers. The *Handbook* includes research reports, discussion of procedures, and summaries of technology and applications. AEC recently started a monograph series reprinting technical reports and tutorial materials.

BERKELEY ENTERPRISES, 815 Washington Street, Newtonville, Massachusetts 02160. Edmund C. Berkeley, Editor and Publisher. *Computers and Automation* is a monthly journal; articles are usually informal and descriptive. Sometimes information about a new project appears here before it is reported more formally. Usually each March issue carries a set of articles on "Computers and Education" ($15.00 per year). Berkeley also publishes books and monographs bearing on computers in education.

Berkeley and *Computers and Automation* operate and maintain a PDP-9 computer (made by Digital Equipment Corporation) using more than half a dozen interactive programing languages, including LISP, FOCAL, DDT and EXPL. One of the main purposes of this installation is research and investigation in learner-controlled computer-assisted instruction.

COMPUTER-ASSISTED INSTRUCTION, INC. (CAI, Inc.), 111 West Monroe Street, Chicago, Illinois 60603, Dr. Robert C. Kyle, President. CAI, Inc. specializes in design development and implementation of training systems. One-day seminars directed to business, industry, government and schools consider the present and future potential for use of computers in the educational and training process. Subscription fees vary.

COMPUTER EDUCATION GROUP, an affiliate of the British Computer Society and Schools Council Project Technology, c/o Chairman, North Staffordshire Polytechnic, Department of Mathematics, Science and Computing, Beaconside, Stafford, England. The two organizations collaborate in the publication of the quarterly bulletin, *Computer Education.* Originally intended for readers in the United Kingdom, recent issues have increasing relevance for an international audience. The editor is B. Bowker, Enfield College of Technology, Queensway, Enfield, Middlesex, England.

Data Processing for Education. 1309 Cherry Street, Philadelphia, Pennsylvania 19107 is a monthly newsletter (formerly published by the Automated Education Center). It discusses current and pro-

jected programs and publications in the field of computers in education of both national and international scope ($16.00 per year).

EDUCOM (Interuniversity Communications Council, Inc.), 100 Charles River Plaza, Boston, Massachusetts 02114. Henry Chauncey, President. The central office distributes a bi-monthly publication, *EDUCOM*, The Bulletin of the Interuniversity Communications Council, without charge to the faculty of its 105 member institutions of higher education. The Bulletin is also available on a subscription basis at $10 per year or $5 per year to educational institutions.

Needs in the area of computer uses for instruction are reviewed, along with other topics, by panels concerned with technology and applications. A set of documents on programing languages and technical assistance for authors was prepared in cooperation with the Center for Research on Learning and Teaching, University of Michigan. Copies of this comparative study of languages, partially funded by the Office of Naval Research, are available from EDUCOM.

The recently organized Educational Information Network (EIN) is administered by EDUCOM. Funded by USOE and NSF, EIN is developing a pilot network which will assemble directory and information services, recommend standard practices, and facilitate cost sharing of communication circuits and special computer facilities for remote use or for information exchange.

ENTELEK, Inc., 42 Pleasant Street, Newburyport, Massachusetts 01950. Albert Hickey, President. Entelek conducts a CAI/CMI Information Exchange originally contracted for by ONR which periodically distributes abstracts of CAI and CMI research documents, summaries of operational CAI programs, and descriptions of individual CAI facilities. Five by eight inch data cards are mailed in multiple copies for cross-indexing and are accompanied by author, subject, KWIC, and bibliographic indexes. ONR originally paid the costs for about 60 institutions active in the CAI field and in the exchange; subsidy is no longer necessary and all participants now subscribe at $150 per year. Entelek has proposed a new journal called Computers in Instruction; William R. Uttal would be the editor.

ENTELEK assists with CAI interest group meetings, publishes summaries, and distributes an occasional newsletter, entitled *CAI/CMI Letter*. The first information exchange, were published 1966, 1967, and October 1968. The fourth edition is in press. Proceedings of the Entelek regional meetings are currently in process and information on them may be obtained by writing to Sally Birch, Entelek.

ERIC CLEARINGHOUSE ON EDUCATIONAL MEDIA AND TECHNOLOGY, Institute for Communication Research, Stanford University, Stanford, California 94305. The current report literature is indexed and abstracted in *Research in Education* ($21.00 per year, U.S. Government Printing Office, Washington, D.C. 20402), while journal literature is indexed in *Current Index to Journals in Education* ($34.00 a year, CCM Information Corp., 909 Third Avenue, New York, New York 10022).

Supported by the Office of Education, it has been chartered to collect, review and abstract publications and documents of importance in the various media areas, including computer-assisted instruction, and to prepare them for indexing and storage in a computer-accessed data base. While the Clearinghouse does not collect actual teaching materials, it does prepare and publish summary papers on the state-of-the-art in different parts of the field. Documents are available from the ERIC Documents Reproduction Service, P.O. Drawer O, Bethesda, Maryland 20014 in microfiche and photography. ERIC at Stanford's regular newsletter is free upon request.

EDUCATION AND TRAINING CONSULTANTS CO., (ETC) 12121 Wilshire Boulevard, Los Angeles, California 90049 (Mailing: Box 49899, Los Angeles 90049). Dr. Leonard C. Silvern, President. Three-day to two-week training programs in "CAI Systems" and "Advanced CAI Systems" are presented in Los Angeles each February, July, and November. The same courses are given at various locations in the United States on a contract basis. This commerical organization publishes technical reports in the Systems Engineering of Education Series, filmstrips, sound-slide presentations, CAI courses and news releases in the area of education, training and systems techniques.

HAYDEN PUBLISHING COMPANY, INC., 850 Third Avenue, New York, New York 10022, James S. Mulholland, Jr. President. *Computer Decisions* is a monthly magazine which includes articles on information systems, automated processing and problem solving. Robert C. Haavind is editor in chief.

THE INSTITUTE FOR ADVANCED TECHNOLOGY (IAT), CEIR, Inc., of the Central Data Corporation, 5272 River Road, Washington, D.C.

20016. CEIR holds three-day seminars on Computer Assisted Instruction for those involved in education and training functions. No prior computer knowledge is necessary.

INSTITUTE FOR COMPUTER ASSISTED INSTRUCTION (ICAI), 42 East Court Street, Doylestown, Pennsylvania 18901. Dr. Alex B. Kyle, President. This commercial organization holds a number of conferences, meetings, training workshops for instructional programmers, and public one-day briefings each year. It plans to publish an annual state-of-the-art review and also the CAI Newsletter (8 issues, $12.00 per year).

INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE), 345 E. 47th Street, New York, N.Y. 10017. *Proceedings of the IEEE* occasionally is devoted entirely to computers and related subjects. The last such issue was December 1966, which contained some papers on computer-aided instruction. The November 1967 issue was devoted to computer-aided design ($22.00 per year, single copy of special issues $4.00). *IEEE Transaction on Man-Machine Systems* (name changed from *Transactions on Human Factors in Electronics*), *IEEE Transactions on Education* and *IEEE Transactions on Systems Science and Cybernetics* often include relevant papers. A special issue of the first journal, June 1967, contained eight articles focused on computers and education. Subscription prices vary (single copy $5.00).

INSTRUCTIONAL MEDIA LABORATORY (IML), University of Wisconsin—Milwaukee, Wisconsin 53201. Directed by Robert E. Hoye, the laboratory is primarily concerned with the University of Wisconsin System; nevertheless it prepares an *Index to Computer Assisted Instruction* now published by Sterling Institute and edited by Helen Lekan (See Lekan, Section 1).

INTERNATIONAL FEDERATION FOR INFORMATION PROCESSING, 6 Stadhouderskade, Amsterdam 13, The Netherlands; Congress Office, 23 Dorset Square, London, N.W. 1, England. Proceedings of the IFIP tri-annual congresses often contain technical papers related to computer applications in education. Proceedings of the 1962–1965 and 1968 congresses should be available from the North-Holland Publishing Company, P.O. Box 3489, Amsterdam. Special meetings are held occasionally, such as the World Conference on Computer Education in Amsterdam, August 24–28, 1970.

THE NATIONAL ASSOCIATION OF SECONDARY SCHOOL PRINCIPALS (NASSP), 1201-16th Street, NW, Washington, D.C. 20036. During 1970 the Committee on Computers in Education of the NASSP offered a series of seminars on potential uses of the computer in various parts of the country. Co-sponsored by Sterling Institute, the seminars included an explanation and actual use of CAI programs in various curriculum areas, use of the computer in the classroom as a problem-solving tool, exploration of CMI and IPI as well as exposure to and use of new instructional technologies. The seminars are intended primarily for secondary school principals. Registration fees from $115 to $170 for a two and one-half day session.

NATIONAL ASSOCIATION OF USERS OF COMPUTER APPLICATIONS TO LEARNING (NAUCAL). Mr. John Grate, Associate Director, Program Research and Design, Cincinnati Public Schools, 320 East 9th Street, Cincinnati, Ohio 45202. This group was organized by large school systems having CAI projects. The initial purpose was to present a defined, unified market to hardware and software vendors interested in CAI. Plans include a centralized dissemination of information on CAI to members.

NATIONAL CATHOLIC EDUCATION ASSOCIATION, One Dupont Circle, N.W., Washington, D.C. 20036. The Association publishes a calendar of all national and regular educational meetings each year. Entries give dates, places, tentative agendas, discussants, etc. ($1.80 per year).

NATIONAL COUNCIL FOR EDUCATIONAL TECHNOLOGY (NCET), 160 Great Portland Street, London W 1, England. The *Journal of Educational Technology* is the official publication of the NCET. It began publishing three issues per year, in January 1970. The periodical is concerned primarily with the theory, applications and development of educational technology and communications, and includes editorials, research reports and articles (£3.50 per year or $8.40).

NATIONAL EDUCATION ASSOCIATION, 1201 16th Street N.W., Washington, D.C. 20036. The Association for Educational Telecommunications and Technology (AECT) an affiliate of the NEA, publishes *Audiovisual Instruction* ($12.00 or 10 copies per year). The *Audiovisual Communications Review,* published quarterly by AECT occasionally includes research reports and survey articles ($13.00 per year). AECT holds an annual conference each spring.

NATIONAL SOCIETY FOR PROGRAMMED INSTRUCTION, Trinity University, 715 Stadium Drive, San Antonio, Texas 78212. The annual meeting usually is scheduled for April and includes sessions on instructional use of computers. *NSPI Journal* is the official monthly publication of the Society (not published in January and August). Elaine Davis is managing editor. The journal contains articles on all facets of instructional programing as well as some newsnotes; computers are receiving increasing attention. Annual subscription is $20.00 for non-members; $5.00 for members.

NORTH AMERICAN PUBLISHING COMPANY, 134 North Thirteenth Street, Philadelphia, Pennsylvania 19107, I. J. Borowsky, President. *Data Processing Magazine* is a trade journal that appears monthly. It contains a section on the use of computers in education. Martin Nussbaum is editor. ($8.50 per year).

ORGANIZATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT (OECD), Centre for Educational Research and Innovation (CERI), 2 Rue Andre Pascal, Paris XVIe, France. Originally concerned with economic redevelopment of Western Europe, OECD is now focusing its attention on social and educational problems. CERI is reviewing computers and other technology for educational innovation. The proceedings of meetings held in March 1970 are likely to be available soon.

TECHNICAL PUBLISHING COMPANY, 94 South Los Robles Avenue, Pasadena, California 91101, publishes *Datamation,* edited by Robert B. Forest. This trade journal includes occasional articles on the use of computers in instruction. A special issue on computers and education appeared in September 1968. Subscription inquiries should be directed to *Datamation,* 35 Mason Street, Greenwich, Connecticut 06830. Issued 24 times per year ($25.00 per year).

Summary Table of Periodicals for Computers in Education

N—Newsletter: news, announcements, abstracts
B—Bulletin: technical reports, position statements (viewpoints), news
M—Magazine: tutorials, position statements, informal reports, some news
J—Journal: referred papers (technical reports, research findings, and surveys, reviewed before acceptance for publication)

Each periodical is listed in a column for the audience of computer users and specialists to which it appears to be primarily directed; a secondary audience sometimes is indicated in parentheses in another column.*

* Many discipline oriented periodicals that contain information on the instructional use of computers in specific disciplines, such as *Computers in the Humanities,* are not included in this table. They appear in the next section of this appendix.

C & IP: Computer and information processing scientists and teachers of computer studies
E & IT: Educational and instructional technologists
EP : Educational psychologists
Adm : Administrators

PERIODICAL	*C & IP*	*E & IT*	*EP*	*Adm*
ACM				
Communications of the ACM	B/J			
Computing Surveys	J			
Bulletin of the Special Interest Group on computer uses in education (INTERFACE)	B	(B)		

PERIODICAL	*C & IP*	*E & IT*	*EP*	*Adm*
Computer Education	B			
Datamation	M			
Computers and Automation	M			
EDUCOM Bulletin	(B)	B		
Data Processing Magazine	M			
Computer Decisions	M			
ASEE				
Engineering Education	J			
ERM	(M)	M		
IEEE				
Transactions on Education	J			
Transactions on Systems Science and Cybernetics	J			
Transactions on Man-Machine Systems	J			
International Journal of Man-Machine Studies	J	(J)		
EDUCOM Bulletin	(B)	B		
(Computer Contributions to Learning and Teaching, proposed by Elsevier)	(J)	J	(J)	
ADIS Newsletter	(N)	N		
(Instructional and Learning Science, proposed by Elsevier)	(B)	B		
NEA				
Audiovisual Instruction		M		
Audiovisual Communications Review		J		
Entelek CAI/CMI Letter		N		
(CAI Letter, proposed by the Institute for Computer Assisted Instruction)		N		
Automated Education Letter		N		

PERIODICAL	*C & IP*	*E & IT*	*EP*	*Adm*
Data Processing for Education		N		
Educational Technology		M		
Journal of Educational Technology (NCET)		J		
NSPI Journal			(J)	
AERA				
American Educational Research Journal			J	
Review of Educational Research			J	
Educational Researcher			B	
APA				
Educational Psychologist			(B)	
Journal of Educational Psychology			J	
AEDS				
Monitor	(B)	(B)		B
Journal of AEDS		(J)		J
Journal of Educational Data Processing (annual special issue)		(J)		J

Publications and Planning Groups Oriented to Various Subject Areas

Information listed in this section specifies professional organizations which provide information or publish materials on the instructional use of computers in their field. Some of these organizations have been extremely active in providing materials and assistance to members wishing to utilize computers in their teaching activities; others are only now realizing the importance of computers and recognizing their responsibility to disseminate information, organize working groups, minimize duplications, etc.

The material in this section does not detail the activities of all professional organizations; rather, it is meant only to indicate the extent of activity within a discipline orientation and the prospects for assistance to individual teachers from this quarter. The section is intended as a preliminary guide to teachers and administrators within each discipline who may be unaware of the specialized assistance available to them.

Contents:

A. Humanities (page 275)

a. General
b. Art
c. Languages and Linguistics
d. Literature
e. Music

B. Mathematics and Physical Sciences (page 276)

a. General
b. Mathematics
c. Computer Science
d. Physics
e. Chemistry
f. Biology
g. Geology

C. Social Sciences (page 279)

a. General
b. Sociology
c. Political Science
d. Geography
e. History

D. Professions (page 280)

a. Architecture
b. Business
c. Education
d. Engineering
e. Journalism
f. Law
g. Library Science
h. Medicine and Dentistry
i. Social Work
j. Urban Planning

A. HUMANITIES

a. GENERAL

Publications:

1. Computers and the Humanities
Queens College of the City University of New York
Flushing, New York 11367

April 30, 1969 issue contains proceedings of a two-day symposium at Queens College, May 9–10, 1969, "Humanities: Computers 69."

2. "New Graphics for Arts and Science," George A. W. Boehm, *Think,* March-April 1969, IBM, Armonk, New York 10504.

3. Computers in Humanistic Research, Edmund A. Bowles, (ed.), Prentice-Hall, Englewood Cliffs, New Jersey, 264 pp. Presents short surveys of the use of computers in different fields of the humanities and social sciences.

4. Sedelow, Sally Yeates, "The Computer in the Humanities and Fine Arts," *Computing Surveys,* Vol. 2, June 1970.

b. ART

Publication:

1. Paquette, Russell, "Cybernetic Art: The Computer As Renaissance Man," *SDC Magazine,* Vol. 12, No. 4, April 1969, System Development Corporation, 2500 Colorado Avenue, Santa Monica, California 90406

c. LANGUAGES AND LINGUISTICS

Organizations:

1. Modern Language
Association of America
62 Fifth Avenue
New York, New York 10011

2. ACM Special Interest Group on Language Analysis and Studies in the Humanities (SIGLASH)
c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

SIGLASH Bulletin, 5 issues per year

3. ERIC Clearinghouse on Languages and Linguistics
Modern Language Association
62 Fifth Avenue
New York, New York 10011

Abstracts of documents on commonly taught languages.

and

Abstracts of documents on linguistics and the less-taught languages

5. ERIC Clearinghouse on Reading and Communication Skills
1111 Kenyon Road
Urbana, Illinois 61801

Abstract documents on English language and literature

Publication:

1. Computer Studies in the Humanities and Verbal Behavior
Lewis Sawin, Editor
Department of English
University of Colorado
Boulder, Colorado 80302

Subscription address:
Computer Studies in the Humanities and Verbal Behavior
Mouton
P.O. Box 1132
The Hague, The Netherlands $10.00 per year

d. LITERATURE

Publication:

1. Calculi
Stephen V. F. Waite, Editor
Department of Classics
Dartmouth College
Hanover, New Hampshire

Newsletter dealing with progress in the use of computers in classics, as well as news notes about conventions and meetings. No charge.

e. MUSIC

Publications:

1. "Computer-Assisted Music Instruction: A Look at the Potential," R. Allvin, September 1968, Oakland University, School of Music, Rochester, Michigan 48063.

2. "An Experimental Study of the Validity and Effectiveness of an Automated Rhythm Training Program, W. Ihrke, Final Report, ERIC Document Reproduction Service, P.O. Drawer O, Bethesda, Maryland 20014

3. "Feasibility and Requirements for Computerization of Elementary Music Instruction Through Electronic Keyboard Interaction," Final Report, Project No. OE8-0132, W. Kent, ERIC Document Reproduction Service, ED038039.

4. "Development and Evaluation of Computer-Assisted Instruction in Instrumental Music," Final Report No. OE7-0769, N. Diehl, ERIC Document Reproduction Service, ED035314.

B. MATHEMATICS AND PHYSICAL SCIENCES

a. GENERAL

Organizations:

1. American Association for the Advancement of Science
1515 Massachusetts Avenue, N.W.
Washington, D.C. 20005

Science, a weekly magazine which occasionally carries articles on computer use in education.

2. National Science Teachers Association
1201 16th Street N.W.
Washington, D.C. 20036

Science Teacher Journal
"Computers—Theory and Uses," prepared by NSTA for secondary school classes, this unit has both a Student's Manual and a Teacher's Guide. The Manual gives basic information on computers, how they operate, and their place and uses in today's world. The Guide includes source and reference materials. 1964. Individual titles $1.00

b. MATHEMATICS

Organizations:

1. National Council of Teachers of Mathematics (NCTM)
1201 16th Street N.W.
Washington, D.C. 20036

"Computer Assisted Instruction and the Teaching of Mathematics," Report of a national conference, 1969, 152 pp., $2.00

"Computer Facilities for Mathematics Instruction," Information on educational uses of computers at the secondary school level, 1967, 47 pp., $.90.

"Computer Oriented Mathematics," Basic principles of automated computation as they relate to mathematics, illustrated, 1963, 204 pp., $2.50.

"Introduction to an Algorithmic Language (BASIC)," 1968, 49 pp., $1.40.

"Computer Applications for Mathematics Education—Selected Bibliography," January 1969, 7 pp., no charge.

Journal of Research in Mathematics Education, quarterly.

The Arithmetic Teacher
The Mathematics Teacher
Both are published 8 times a year with occasional articles on the use of computers in teaching and learning. The *Mathematics Teacher* contains a regular column on "Computer-oriented Mathematics."

2. Mathematics Association of America (MAA)
1255 Connecticut Avenue, N.W.
Washington, D.C. 20036

Committee on the Undergraduate Program in Mathematics (CUPM)

CUPM Newsletter
CUPM Central Office
P.O. Box 1024
Berkeley, California 94701

Committee on Educational Media
P.O. Box 2310
San Francisco, California 94126

3. Center for Research in College Instruction of Science and Mathematics (CRICISAM)

212 Diffenbaugh
Florida State University
Tallahassee, Florida 32306

Computer-related course in calculus

4. ACM Special Interest Groups on:

Numerical Mathematics (SIGNUM)—Newsletter
Mathematical Programming (SIGMAP)—Newsletter
Symbolic and Algebraic Manipulation (SIGSAM)—Bulletin

c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

Other Publications:

1. Post, D., "The Use of Computers in Secondary School Mathematics," 1970, 251 pp., $4.95. Available from Entelek, 42 Pleasant Street, Newburyport, Massachusetts 01950

2. Computing Concepts in Mathematics (CCM)
Educational Planning
Science Research Associates, Inc.
259 East Erie Street
Chicago, Illinois 60611

This two semester course is designed to give secondary and college students insight into computing and the use of the computer as a tool in the study of mathematics.

3. CAMP (Computer Assisted Math Program)

David Johnson
University of Minnesota
Minneapolis, Minneosta

c. COMPUTER SCIENCE

Organizations:

1. ACM Special Interest Groups on:

Computer Science Education (SIGCSE)—Bulletin
Computter Graphics (SIGGRAPH)—News letter *COMPUTER GRAPHICS*
Real-Time Processing (SIGREAL)—Newsletter
Computer Personnel Resources (SIGCPR)—Newsletter
University Computing Centers (SIGUCC)—Newsletter

2. Association for Educational Data Systems (AEDS)
1210 Sixteenth Street, N.W.
Washington, D.C. 20036

AEDS Monitor—monthly newsletter
Journal of AEDS—quarterly
Special attention to secondary school programs

d. PHYSICS

Organizations:

1. Commission on College Physics (CCP)
University of Maryland
4321 Hartwick Road
College Park, Maryland 20470

The Computer in Physics Instruction, proceedings of a Conference, November 4–6, 1965, at the University of California, Irvine. Previously available from the Commission on College Physics; to be replaced by the proceedings of the 1970 conference.

Conference on "Computers in Undergraduate Science Education," to be held at the Illinois Institute of Technology, Chicago, August 17–21, 1970, sponsored by CCP and ITT. Preliminary proceedings to be available at the conference and the final proceedings sometime afterward.

Bork, A. B., Luehrmann, A., and Robson, J. W. *Introductory Computer-Based Mechanics: A One Week Sample Course,* November 1968.

Blum, R. M., (ed.), *Computer-Based Physics: An Anthology,* September 1969.

Blum, R. M., and Bork, A. B. "The Computer in the Physics Curriculum," American Journal of Physics, July 1970.

2. Center for Research in College Instruction of Science and Mathematics (CRICISAM)

212 Diffenbaugh
Florida State University
Tallahassee, Florida 32306

"Computers in Physics Instruction," *Physics Today* September 1969. It will be updated in a forthcoming Unesco publication entitled "New Trends in Physics Teaching."

3. American Institute of Physics
333 East 45th Street
New York, New York 10017

American Journal of Physics—12 issues per year—it contains a section for description of instructional uses of the computer, including provision for obtaining copy of programs in computer-readable form.

e. CHEMISTRY

Organizations:

1. American Chemical Society

Division of Chemical Education

Journal of Chemical Education
Chemical Education Publishing Company
20th and Northampton Streets
Easton, Pennsylvania 18042

Spring 1970 issue includes articles on computers in education

2. National Academy of Sciences—National Research Council
Division of Chemistry and Chemical Technology
2101 Constitution Avenue, N.W.
Washington, D.C. 20418

Committee on Computers in Chemistry
Dr. Peter G. Lykos, Chairman
Office of Computing Activities
National Science Foundation
Washington, D.C. 20550

Other Publications:

1. Modern Teaching Aids for College Chemistry (Serial Publication 18)
Advisory Council on College Chemistry
Stanford University
Stanford, California 94305

f. BIOLOGY

Publication:

1. Proceedings of the Eighth Annual Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas, March 23, 24, 1970. There was one session devoted to CAI in the Biomedical Sciences.

g. GEOLOGY

Organizations:

1. American Geological Institute
Council on Education in the Geological Sciences
2201 M. Street N.W.
Washington, D.C. 20037

"Undergraduate Instruction in Geomathematics," Osborne, R. H. *Journal of Geological Education,* Vol. XVII, No. 4, October 1969. Short Review reprint available.

"Computer-oriented Laboratory Exercises for Geology and Oceanography," Fox, W. T. *Journal of Geological Education,* Vol. XVII, No. 4, October 1969, Short Review reprint available.

2. American Association of Petroleum Geologists
Box 979
Tulsa, Oklahoma 94101

Other Publications:

1. Kansas Computer Center Contribution Series Publications
Computer Center
University of Kansas
Lawrence, Kansas 66044

Published also in cooperation with the State Geological Survey

C. SOCIAL SCIENCES

a. GENERAL

Organizations:

1. ACM Special Interest Committee on Computers and Society (SICCAS)
ACM Special Interest Group on Social and Behavioral Science Computing (SIGSOC)
c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

SICCAS Newsletter—quarterly
SIGSOC Newsletter—quarterly

2. Other Publications:

1. *Digital Computers in Research,* Green, B. F., Holt, Rinehart and Winston, New York 1963. Part III summarizes applications in behavioral sciences.

2. *The General Inquirer,* Stone, P. J., M.I.T. Press, Cambridge, Massachusetts, 1966, 651 pp. Discussion of procedures for and applications of content analysis in psychology, sociology, political science, anthropology, history and literature.

3. "IMPRESS and Undergraduate Education in the Social Sciences," *Proceedings of the Conference on Computers in the Undegraduate Curricula,* University of Iowa, Iowa City, 1970.

4. "Interactive Systems and Social Science Research and Instruction," E. Myers, *Social Science Information,* June 1970

b. SOCIOLOGY

Publication:

1. "Problem Solving Computer Systems for Instruction in Sociology," in *The American Sociologist,* Cline, H. F., and Meyers, E. O., Jr. (in press)

c. POLITICAL SCIENCE

Organization:

1. The American Political Science Association
1527 New Hampshire Avenue, N.W.
Washington, D.C. 20036

Committees on Pre-Collegiate Education and Undergraduate Instruction

A Committee on Scientific Information Exchange may undertake activity in the area of instructional use of the computer.

d. GEOGRAPHY

Organization:

1. Commission on College Geography
Dr. John Lounsbury, Director
Department of Geography
Arizona State University
Tempe, Arizona 85281

"Computer-Assisted Instruction in Geography," Technical Paper No. 2.

Panel on Computer Assisted Instruction
Dr. Kennard W. Rumage, Chairman
Department of Geography
State University College at Brockport
Brockport, New York 14201

e. HISTORY

Organization:

1. Mathematics in the Social Sciences
Subcommittee on Mathematics and Statistical Methods in History
Dr. Robert W. Fogel, Chairman

Department of Economics
University of Chicago
Chicago, Illinois 60637

Other Publications:

1. *Historical Methods Newsletter*
Jonathan Levine, Editor
Department of History
University of Pittsburgh
Pittsburgh, Pennsylvania 15213

A quarterly newsletter publishing short articles, research notes, review essays and announcements. The editorial office maintains an active file of reports of research in progress and can respond to queries for information about particular techniques or data.

D. PROFESSIONS

a. ARCHITECTURE

Organizations:

1. American Institute of Architects
Frank L. Codella, Administrator
Department of Professional Services
The Octagon
1735 New York Avenue N.W.
Washington, D.C. 20006

A non-profit corporation sponsored by AIA is Production Systems for Architects and Engineers, Inc.
343 South Dearborn Street
Chicago, Illinois 60604

2. ACM Special Interest Group in Urban Data Systems, Planning, Architecture and Civil Engineering (SIGSPAC)
c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

SIGSPAC Bulletin—bi-monthly

b. BUSINESS
Organizations:

1. Project on Computers in Management Education
Michael S. Scott Morton, Director
Alfred P. Sloan School of Management
Massachusetts Institute of Technology
50 Memorial Drive
Cambridge, Massachusetts 02139

2. ACM Curriculum Committee on Computer Education for Management
Professor Daniel Teichroew, Chairman
Department of Industrial Engineering
College of Engineering
University of Michigan
Ann Arbor, Michigan 48104
Report in preparation: May 1969 interim report available

3. ACM Special Interest Group on Business Data Processing (SIGBDP)
c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

4. Administrative Data Processing Group (IAG)
International Federation for Information Processing (IFIP)
6 Stadhouderskade
Amsterdam 13, The Netherlands

IAG Journal, quarterly

c. EDUCATION

Organizations:

1. National Association of Secondary School Principals (NASSP)
Committee on Computers in Education
1201 Sixteenth Street N.W.
Washington, D.C. 20036

Series of executive seminars for educational administrators on the computer in education.

2. National Education Association
1201 Sixteenth Street N.W.
Washington, D.C. 20036

NEA Handbook, published annually, available from the Publication-Sales Section at $2.00 a single copy.

3. American Educational Research Association (AERA)
1126 Sixteenth Street N.W.
Washington, D.C. 20036

Special Interest Group on Computer Aids to Learning
Robert Seidel, Chairman
HumRRO Project IMPACT
300 N. Washington Street
Alexandria, Virginia 22314

d. ENGINEERING

Organizations:

1. American Society for Engineering Education
Suite 400
One Dupont Circle
Washington, D.C. 20036

Council for Teaching and Learning
Educational Research and Methods Division
Computers in Engineering Education Committee
Information Systems Committee
Committee on Instructional Technology
Engineering Education, a monthly publication, September through June, $16.00

ERM, a quarterly journal of the Educational Research and Methods Division, includes articles on computers and applications in engineering instruction $2.00 per year

2. National Academy of Engineering
Commission on Education
2101 Constitution Avenue N.W.
Washington, D.C. 20037

Educational Systems Committee

"Educational Technology in Higher Education: The Promises and Limitations of ITV and CAI," Report of the Commission of Education, September 1969

"A Study of Technology Assessment," includes assessment of CAI in higher education, report of National Academy of Engineering for Committee on Science and Astronautics, U.S. House of Representatives, July 1969; available from U.S. Government Printing Office, Washington, D.C. 20402.

Committee on Computer Science in Electrical Engineering (COSINE)

Some Specifications for a Computer-oriented First Course in Electrical Engineering, September 1968, Task Force I Report.

Impact of Computers on Electrical Engineering Education—A View From Industry, September 1969. Task Force V Report.

Digital Systems Laboratory Courses and Laboratory Development, March 1971. Task Force VI Report. (In press, due to be released March 1971)

3. National Academy of Sciences
2101 Constitution Avenue, NW,
Washington, D. C. 20418

Division of Engineering
Computer Science and Engineering Board

e. JOURNALISM

Organizations:

1. Association for Education in Journalism
Ralph O. Nafziger, Executive Secretary
425 Henry Hall
University of Wisconsin
Madison, Wisconsin 53706

Division on Theory and Methodology
Lionel C. Barrow, Jr., Chairman
Research Department
Foote, Cone & Belding
300 Park Avenue
New York, New York 10017

f. LAW

Organizations:

1. The American Association of Law Schools
1521 New Hampshire Avenue, N.W.
Washington, D.C. 20036

Committee on Teaching Methods
Arthur R. Miller, Chairman
335 Hutchins Hall
University of Michigan
Ann Arbor, Michigan 48104

g. LIBRARY SCIENCE

Organizations:

1. American Library Association
Information Science and Automation Division
50 East Huron Street
Chicago, Illinois 60611

Committee on Library Education
Committee on Inter-Divisional Education

Journal of Library Automation—quarterly, professional journal containing information on original work in computer applications for data processing in libraries.

JOLA—Technical Communications—monthly newsletter

Monograph—"Library Automation—A State of the Art"

h. MEDICINE AND DENTISTRY

Organizations:

1. Continuing Education and Training Branch
Division of Regional Medical Programs
National Institutes of Health
Department of Health, Education, and Welfare
Bethesda, Maryland 20014

Various regional programs include projects on the instructional use of computers.

2. Lister Hill National Center for Biomedical Communications
National Library of Medicine
Department of Health, Education, and Welfare
Bethesda, Maryland 20014

"Technology in Support of Medical Education," Davis, R. M. February 1969.

3. Clearinghouse for Programed Materials in Medical Education and Health Care
University of Rochester School of Medicine and Dentistry
Rochester, New York 14620

4. ACM Special Interest Group on Biomedical Information Processing (SIGBIO)
G. Otto Barnett, Chairman
c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

SIGBIO Newsletter—published every two months

5. Professional Education Branch
Division of Dental Health
National Institutes of Health
Department of Health, Education, and Welfare
Bethesda, Maryland 20014

Proceedings of the conference "Instructional Technology in Dentistry," a report of the Conference on Computer Applications in Dental Education, held in San Francisco, October 29–31, 1969. Available from the Dental Health Center, 14th Avenue and Lake Street, San Francisco, California 94118.

Other Publications:

1. *Computer Programs in Biomedicine*
North Holland Publishing Company
P.O. Box 3489
Amsterdam, The Netherlands (published quarterly)

2. *International Journal of Biomedical Computing*
J. Rose, Editor
Blackburn College of Technology and Design
Blackburn, England (published quarterly)

3. Proceedings of "Conference on the Use of Computers in Medical Education," April 3, 4, and 5, 1968, Oklahoma City, Oklahoma. Available from the University of Oklahoma Medical Center, 800 N.E. 13th Street, Oklahoma City, Oklahoma 73104.

4. Proceedings of an ONR-supported conference, "Computer Assisted Instruction in the Health Professions," held in Cambridge, Mass. in February 1968. Edited by Stolurow, L. M., Peterson, T. and Cunningham, A. Entelek, Newburyport, Massachusetts.

i. SOCIAL WORK

Organization:

1. Council on Social Work Education
345 East 46th Street
New York, New York 10017
Produces a catalog of audiovisual and other technological aids for teaching: one would expect information about computer uses to be included as it becomes available.

j. URBAN PLANNING

Organization:

1. ACM Special Interest Group on Urban Data Systems, Planning, Architecture and Civil Engineering
c/o ACM National Headquarters
1133 Avenue of the Americas
New York, New York 10036

SIGSPAC Bulletin—bi-monthly

☆ U.S. GOVERNMENT PRINTING OFFICE: 1971 O—422-424